Volume XXXVI.
Number 4.

JANUARY, 1909.

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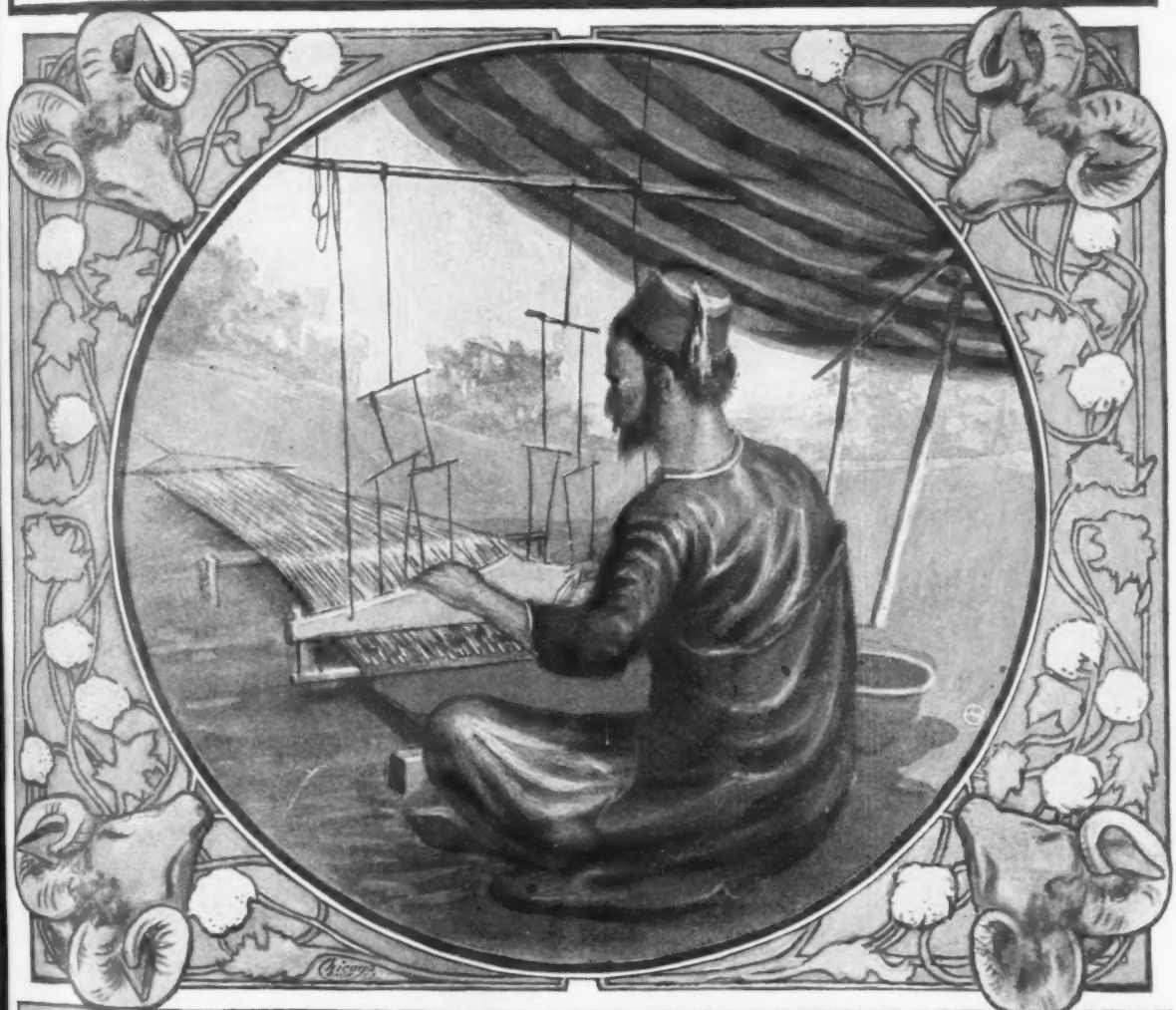
$3.00 with Directory.

TEXTILE WORLD RECORD



LORD & NAGLE COMPANY ~ BOSTON · MASS.

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COPYRIGHT, 1909, LORD & NAGLE COMPANY, REG. U. S PAT. OFF.

The Textile-Finishing Machinery Co.

HOWARD BUILDING

STAIRWAYS, 83 EXCHANGE PLACE [ENTRANCES] ELEVATOR, 171 WESTMINSTER ST.

PROVIDENCE, R. I.

BUILDERS OF ALL KINDS OF

MACHINERY

FOR

BLEACHING
DYEING
DRYING

AND

FINISHING

Singeing Machines,

Boiling Kiers,

Washers, Squeezers,

Chemic and Sour

Rusden Patent

Continuous Chainless

Steamer,

Aniline Agers.

Dyeing Machines.

Open Soapers,

Blanket Washers,

Color Kettles,

Horizontal or Vertical Drying Machines, with Copper or Tinned Iron Cylinders,

Automatic Tentering Machines,

Water and Starch Mangles,

Dampening Machines,

Dyeing Machines for Chain Warps.

Calenders for Rolling Glazing, Chasing and Embossing, also Calenders for Moire Finish.

Sole Manufacturers of Patented Flexible Cloth Expander for Cylinder Drying Machines, Calenders, Mangles, &c.

Patent Combination Rolls Made of Cotton and Husk, especially adapted for Soft Finish, Unequalled for Elasticity and Durability.

Cotton, Paper, Husk, Chilled Iron, Brass and Rubber Rolls, Electro-deposited Copper Rolls for all Purposes.

Padding and Drying Machines for Shade Cloths.

Single and Double Cylinder Engines.

Hydraulic Presses and Pumps.

Mercerizing Machinery for Piece Goods and Yarn in the Warp or Chain

ALL KINDS OF OUTFITS FOR BLEACHING THREAD AND SOFT TWISTED YARN.
BLEACHING MACHINERY FOR YARNS IN THE WARP OR CHAIN.

Estimates, Drawings and full particulars of complete plants furnished on application

Southern Agent, STUART W. CRAMER, Charlotte, N. C., Equitable Building, Atlanta, Ga.

H. W. BUTTERWORTH & SONS CO.

PHILADELPHIA, PA.

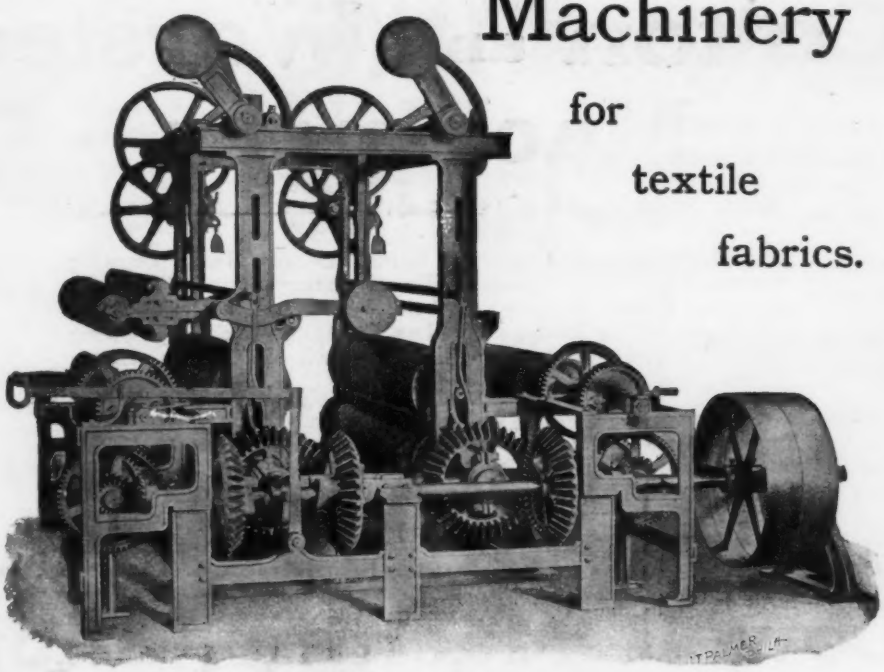
Providence Office,
Room 417, Industrial Trust Bldg.

Bleaching,
Dyeing,
Drying,
Finishing,
Machinery

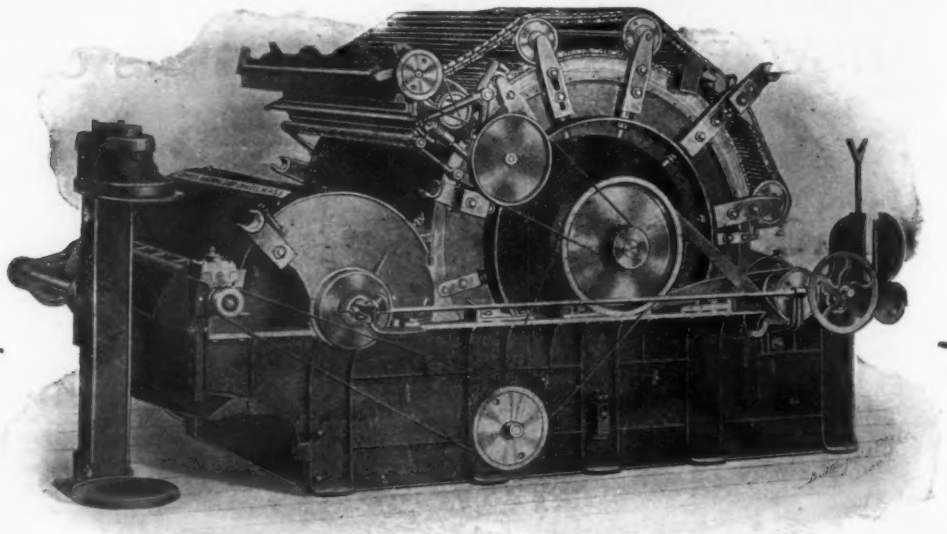
for

textile

fabrics.



DOUBLE CRABBING MACHINE.



Cotton and Worsted Machinery

With Modifications to Suit Any Class of Work.

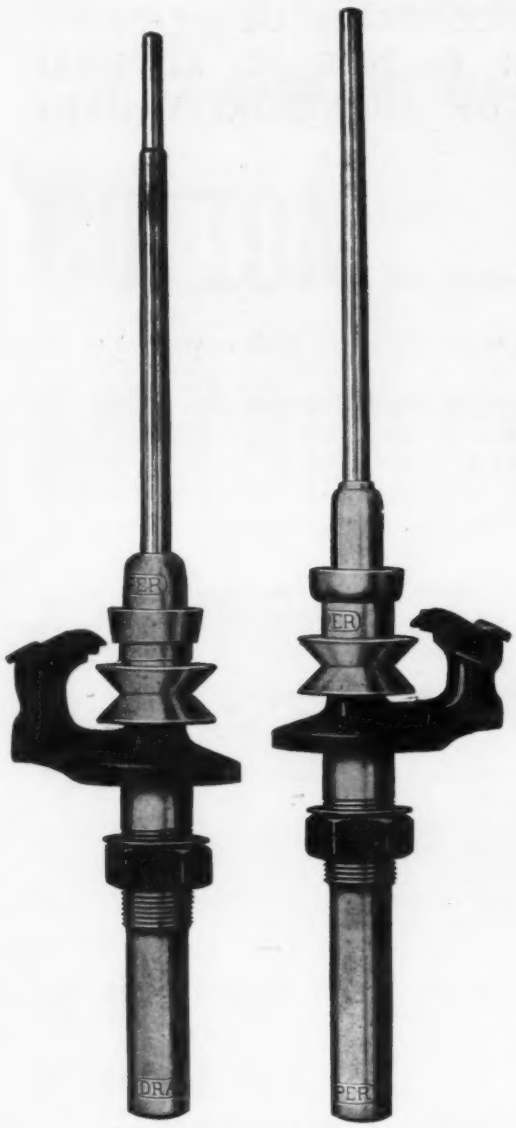
Cotton Machinery: Cards, Railway Heads, Drawing Frames, Fly Frames, Speeders, Ring Spinning Frames, Twisters, Spoolers, Reels, Warpers, Slashers, Winders, Looms, Shearing Machines, Balling Machines, Folders, Stamping Machines, Sewing Machines, Size Pumps, Size Kettles, Drawing-in Frames, Baling Presses, Indigo Grinders.

Worsted Machinery: Spinning Frames with caps, rings or flyers, Dandy Rovers and Reducers, Cone Second Finishers, Reducers and Rovers, Gill Boxes for Drawing, Preparing and Finishing, Weigh Boxes and Drawing Boxes, Cap Trap, Flyer and Ring Twisters.

Plans, Specifications and Estimates furnished upon application.

Lowell Machine Shop

LOWELL, MASS.



Two New
Large Size
Spinning Spindles.

We make

Draper,
Whitin,
McMullan

and other
types of

Spindles;

also

Northrop Looms,

Twisters,
Warpers,
Spoolers,
Reels,

Banding Machines,

etc., etc.

Draper Company,
HOPEDALE,
MASS.

THE EMPHATIC SUCCESS OF OUR "IDEAL" AUTOMATIC LOOM IS DUE TO SEVERAL SALIENT POINTS OF SUPERIORITY OVER ALL COMPETITORS:

1st. The ease and smoothness with which they start up.

2d. The acknowledged superiority of the cloth woven.

3d. Simple and thoroughly mechanical construction, assuring freedom from the constant breakage and expensive repairs attending other automatic looms.

4th. No special bobbins, shuttles or other expensive parts.

5th. Ability to use cop or bobbin filling interchangeably.

6th. Superiority of warp stop motion which does not break or fray the softest yarn.

7th. Of the thousands in operation not a single bobbin or crank shaft broken.

IN PROOF OF CLAIMS WE POINT TO THOSE MILLS FORMERLY USING OUR COMPETITORS' LOOMS THAT ARE NOW USING OURS.

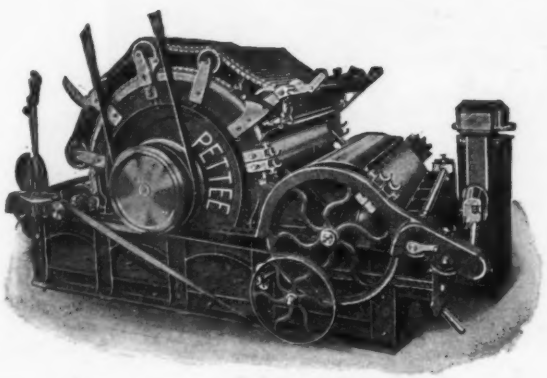
The Stafford Company

Readville, Mass.

Saco and Pettee Machine Shops

NEWTON UPPER FALLS, MASS., U. S. A.

COTTON MACHINERY



Revolving
Flat Cards,
Drawing
Frames,
Railway Heads,
Slubbing,
Intermediate
and
Roving
Frames,
Spinning Frames,
Spoolers
and
Reels.

Shops—

Biddeford, Me.

Newton Upper Falls, Mass.

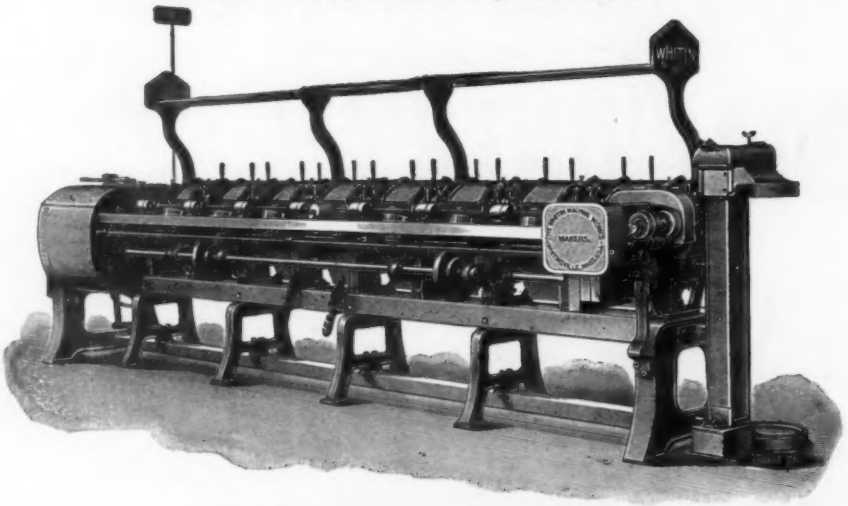
Southern Agent, A. H. WASHBURN, Charlotte, N. C.

THE

WHITIN MACHINE WORKS,

Cotton Machinery

WHITINSVILLE, MASS.



HIGH SPEED COMBER 1906 MODEL.

Revolving Flat Carding Engines,
Sliver Lap Machines,
Ribbon Lap Machines, Combers,
Railway Heads, Drawing Frames,
Spinning Frames, Spoolers, Twisters,
Long Chain Quilling Machines, Reels, Looms.

Southern Agent,
S. W. CRAMER

Trust Building, CHARLOTTE, N. C.
Equitable Building, ATLANTA, GA.

"Kitson Products"

Blowing Systems

For Conveying Bale Cotton
from Storehouse to Picker-room

Self-Feeding Openers
Lappers and
Cleaning Trunks

Waste-Working Machinery

Raw Stock Cotton Dryers

We own the Patterns and can furnish REPAIR PARTS for PICKERS
formerly built by

WHITEHEAD & ATHERTON, . Lowell, Mass.
ATHERTON MACHINE CO., - - Lowell, Mass.
A. T. ATHERTON MACHINE CO., Pawtucket, R. I.

Kitson Machine Shop

Lowell, Mass.

SCOTT & WILLIAMS

2079 E. Cumberland Street, Philadelphia, Pa., U. S. A.

BUILDERS OF

Full Particulars, Samples and Special Catalogues on Application.

Rib Knitting Machinery for Underwear and Hosiery

Plain, Single Lever or with Welt, Slack Course and Automatic Slackening Device for Welt.

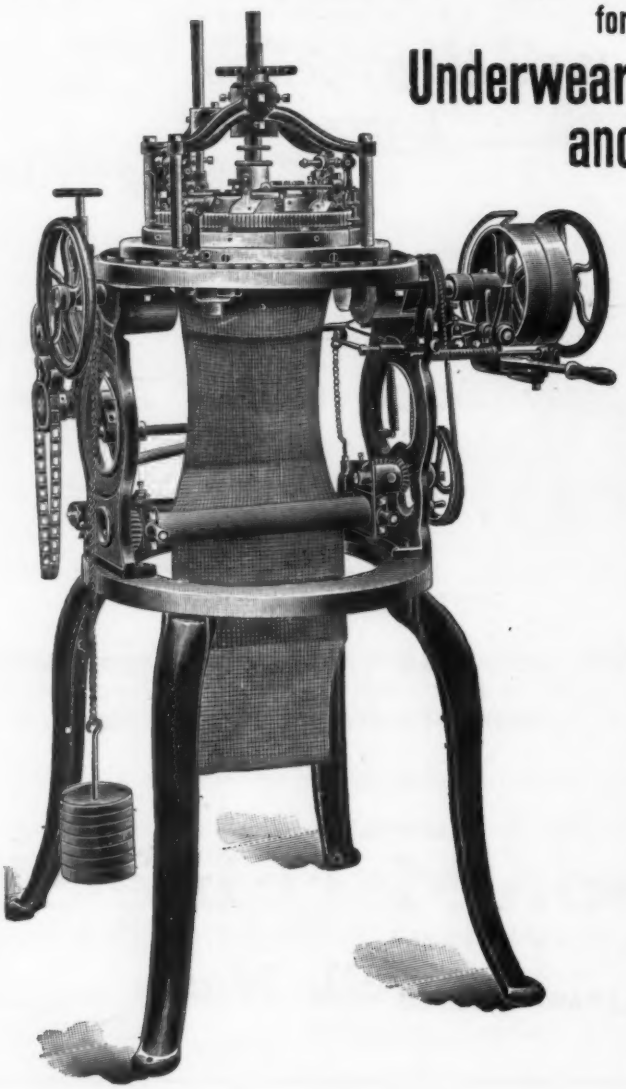
Improved Measuring Device, by actual length knit.

Sizes 8 to 24 inches, inclusive, varying by one inch.

Number of Feeds, 4 to 12, according to style and diameter of machine.

Solid Forged Steel Cylinders, specially hardened or with patent inserted walls for fine fabric.

Special Machinery for Sweaters, etc.



The illustration shows our

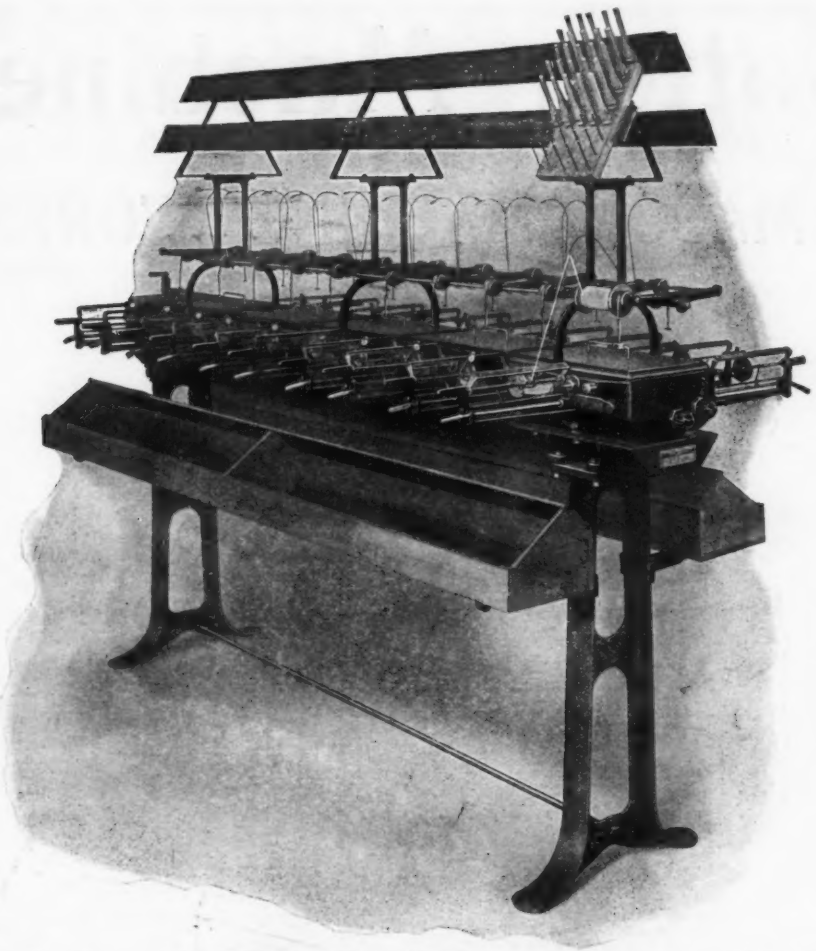
Improved High Speed Single Lever Automatic Ribbed Underwear Machine

for making ladies' and gents' ribbed underwear, union suits, etc., plain and shaped.

We build Loopers, Ribbers and other Machinery for Knitting Mills

As well as

A Complete Line of Full Automatic and 7-8 Automatic Seamless Hosiery Machinery.



Universal No. 90 With Unrolling Supply for Silk Filling

A self-oiling high speed machine for winding fine trams and douppione on box wood bobbins or paper tubes. Interchangeable parts for over end supply for worsted and cotton filling.

No. 90 presents to the industry of weaving the advantage and economies of the "Universal System of Winding."

Universal Winding Co.

95 South Street, Boston, Mass., U. S. A.

International Winding Company

Saville Street, Oxford Road, Manchester, England

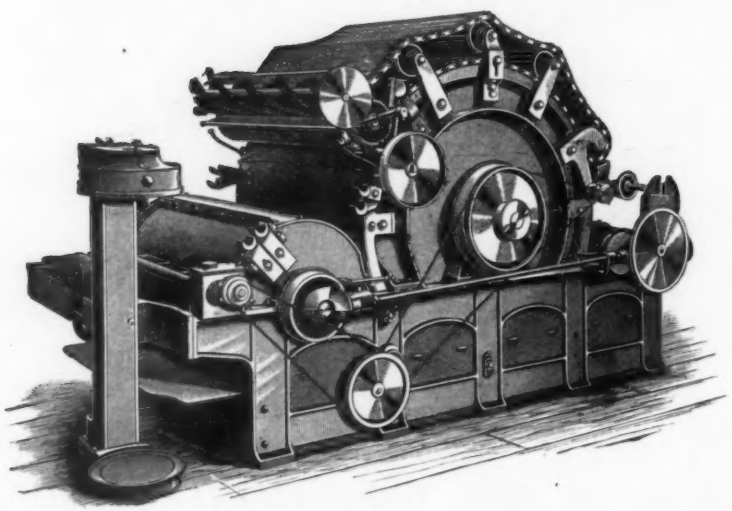
16 St. Johannvorstadt, Basel, Switzerland

Cotton Machinery

MASON MACHINE WORKS,

TAUNTON, MASS.

Southern Office,
Charlotte,
N. C.



Cards,
Combers, Railway
Heads, Drawing Frames
Spinning Frames, Mules and Looms

INCLUDING

Plain and Fancy Silk Looms

EVAN ARTHUR LEIGH

232 Summer Street (opposite the South Station), Boston, Mass.

SOLE AGENT

IN THE UNITED STATES AND CANADA FOR

Platt Bros. & Co., Ltd.

BY FAR THE LARGEST MAKERS IN THE WORLD OF

Cotton, Woolen and Worsted Machinery

Platt's Patent Opening and Picking Machinery.
Platt's Cotton Comber will comb from 7-8" stock to Sea Islands.
Platt's Special Machinery for Making Cotton Waste into Yarns.
Platt's Special Machinery for Making French Worsted Yarns.
Platt's Woolen and Worsted Carding Engines, Special Designs.
Platt's Cotton, Cotton Waste, Woolen and Worsted Mules.

MATHER & PLATT, LTD.

Dyeing and Finishing Machinery.
Archbutt-Deeley System for purifying and softening water.

TEXTILE MACHINERY ASSOCIATION, LTD.

Flax, Hemp and Jute Machinery.

GEORGE HODGSON, LTD.

Looms for Worsteds, etc.

THE PATENT AUTOMATIC FEEDING MACH. CO., LTD.

Patent Feeding Machines for wool, cotton, flax, fur and fibrous material.

JOSEPH SYKES BROS.,
Card Clothing for Cotton.

JAMES CRITCHLEY & SON'S.
Card Clothing for Woolen and Worsted.

DRONSFIELD BROS'.
Grinding Machinery and Emery Filleting. The Best French and English Combing and Rubbing Aprons. Harding's Pins and Circles. Varey's Fallers, etc.

IMPORTANT ANNOUNCEMENT

Manufacturers are hereby warned against using infringements upon the Cramer patents for

Automatic Regulators for Humidifying Systems

Before considering the purchase of infringing devices, make sure that the vendor is amply financially responsible and guarantees to imdemnify the purchaser against loss by damage suits, for both infringers and users of infringements, however crude such infringements may be, will be prosecuted to the full extent of the law.

Don't be imposed upon by misleading terms and claims as to what the vendor's patents cover; anyone can get a patent for almost anything in the way of specific constructions; the vital question is whether or not such patents infringe other prior patents.

Cramer System of Air Conditioning

Spray Humidifiers as good as the best, of large capacity, durable, sanitary, air cleansing and efficient.

Air Conditioners *comprising all the good points of spray humidifiers*, particularly as to large moistening capacity and simplicity; *combined with the good points of evaporation types of humidifiers*, such as complete evaporation of the moisture, large air cleansing capacity and good distribution; *and without the objectionable features of either type*, such as wetting down, localized moistening, large and clumsy constructions, unsanitary conditions due to difficulty of access for cleaning and to the use of wet absorbent disease-breeding materials, and largely reduced efficiencies at all except the lowest humidities,—*features*, simplicity, durability comprising only seamless drawn sheet copper casings, a spray nozzle and a fan. The fans are either electrical driven, or mechanically driven with belts or ropes as the special requirements of each case dictate.

STUART W. CRAMER

Charlotte, N. C. **Atlanta, Ga.**

JAMES HUNTER MACHINE CO.

NORTH ADAMS, MASS., U. S. A.

Crabbing Machine. *Bulletin 70*

The Hunter CRABBING MACHINE

A COMBINATION machine permitting the Crabbing of goods by the Intermittent or Continuous process.

Two machines in one.

Either process of Crabbing may be used to the exclusion of the other, or both systems may be applied to the same piece.

This machine developes the pattern.

It imparts luster and sets the weave.

It prevents wrinkling or cockling and gives softness yet firmness to the fabric.

It makes cloudy goods impossible, brightens colors and imparts an absolutely uniform finish that can be duplicated.

For Resist Dyes it is a wonder.

It produces no seconds but goods that sell.

It is for progressive manufacturers who are only satisfied with the best.

Bulletin 70 fully describes it.

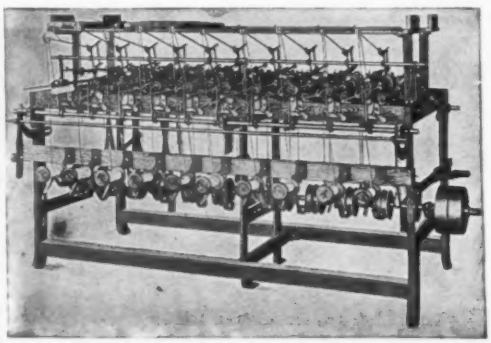
OSWALD LEVER CO.

(Formerly LEVER & GRUNDY.)

Lehigh Ave. and Mascher Sts., PHILADELPHIA, PA.

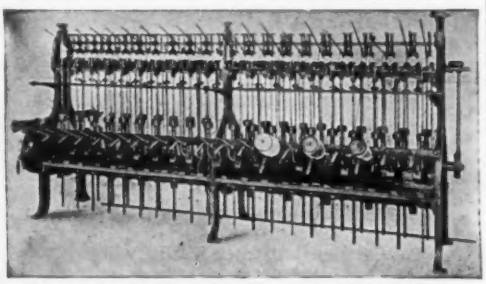
MANUFACTURERS OF TEXTILE MACHINERY.

SOLE MAKERS OF OUR PATENTED SPECIALTIES IN THE UNITED STATES.

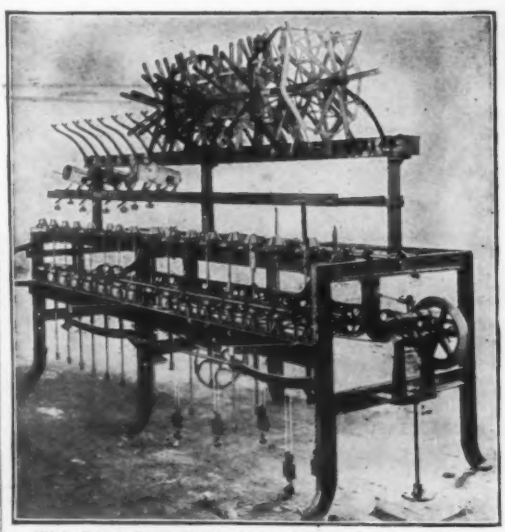


This Machine may be arranged to wind from skeins, spools, cones, or any kind of spinning bobbins. Most suitable machine for cotton or woolen blankets.

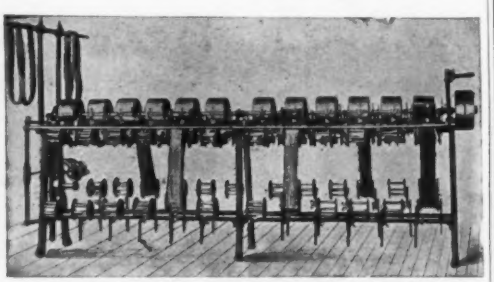
Conical and Parallel Tube Winding Machines; Warping Machines and Creels; Brass Bobbin Winding and other Machinery for lace mills; Chenille Cutting Machines, Sectional Warping Mill, Beaming Machines, etc; Cop Winding Machines for butts to weave from outside; Filling Bobbin or Quill Winding Machines; Vertical Spindle Spooling Machine for silk, fine cotton, wool and worsted; Variable Speed Bobbin Machines for large bobbins used in knitting mills; Dresser Spooling Machines; Reeling Machines.



Vertical Spindle Gear Driven Winder, as used by all manufacturers of heavy duck, jute, cotton, bagging and carpets.



High Speed Cross Quiller to wind from skeins, spools or mule cops on two quills or paper tubes. It is built to run from 1800 to 2400 revolutions.



Pressure Drum Spooling Machine. This machine is adapted for spooling any kind of yarn, whether from mule cops or skeins.

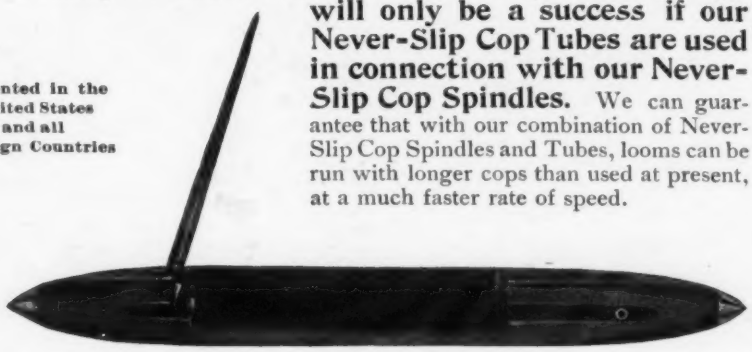
Never-Slip
Cop Spindles and Tubes

Never-Slip Cop Tube

Patent applied for.

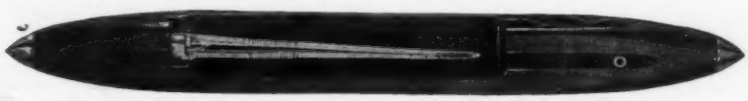
Patented in the United States and all Foreign Countries

Filling-Waste is reduced to nothing and long Cops will only be a success if our Never-Slip Cop Tubes are used in connection with our Never-Slip Cop Spindles. We can guarantee that with our combination of Never-Slip Cop Spindles and Tubes, looms can be run with longer cops than used at present, at a much faster rate of speed.



Shuttle with Spindle Raised

U. S. Patents: 778851, Jan 3, 1905; 790611, May 23, 1905; other patents pending



Shuttle with Spindle Lowered

U. S. Patents: 778851, Jan. 3, 1905; 790611, May 23, 1905; other patents pending

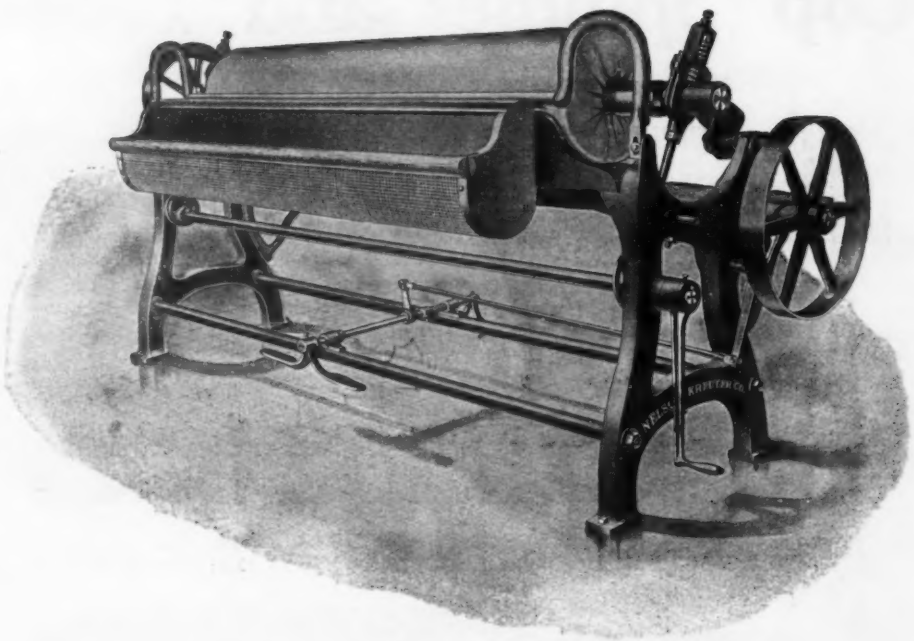
American Textile Specialty Machinery Co.

MANUFACTURERS OF

Shuttles and Shuttle Irons for all Textile Purposes.

New York Office, 363-373 Rider Ave. 670 Eddy St., Providence, R. I.

UNDERWEAR and HOSIERY IRONER



This machine is specially adapted for ironing ribbed and flat underwear and knit goods. The pressure is adjustable and this feature in connection with the padded roll eliminates the possibility of breaking buttons. The machine is very inexpensive to maintain, is easily operated, and gives the goods a smooth, fine finish. Every mill should own one of these ironers.

The American Laundry Machinery Mfg Co

Western Division, 78-80 Franklin St. Chicago

Eastern Division, 132-138 W. 27th St. New York

Southern Division, Station H Cincinnati

SAVE IN DYEING

75% in Labor
50% " Steam
35% " Dyes

"HURRICANE"
Circulating Dyeing Machines
For Yarn, Hosiery, Etc.

Are in a Class by Themselves.

FOR HOSIERY

SINGEING

WITHOUT BOARDS.—Contrast the OLD and NEW Methods

Labor	By using our latest improved Singeing Machine, the amount of labor is usually *less than one half* that required in connection with the older style singeing machines.
Boards	We do not use any singeing boards, hence this expense is entirely eliminated.
Gas	The Burners have been so perfected that we need only about half the amount of gas heretofore required.
Automatic Stripper	Absolutely positive,—with no danger of injuring the stockings or making seconds.
Floor Space	Less than half that required for any singeing machine of the same capacity built heretofore.

YOU will soon need a "Hurricane" Singeing Machine if you have any competition.

THE PHILADELPHIA DRYING MACHINERY COMPANY

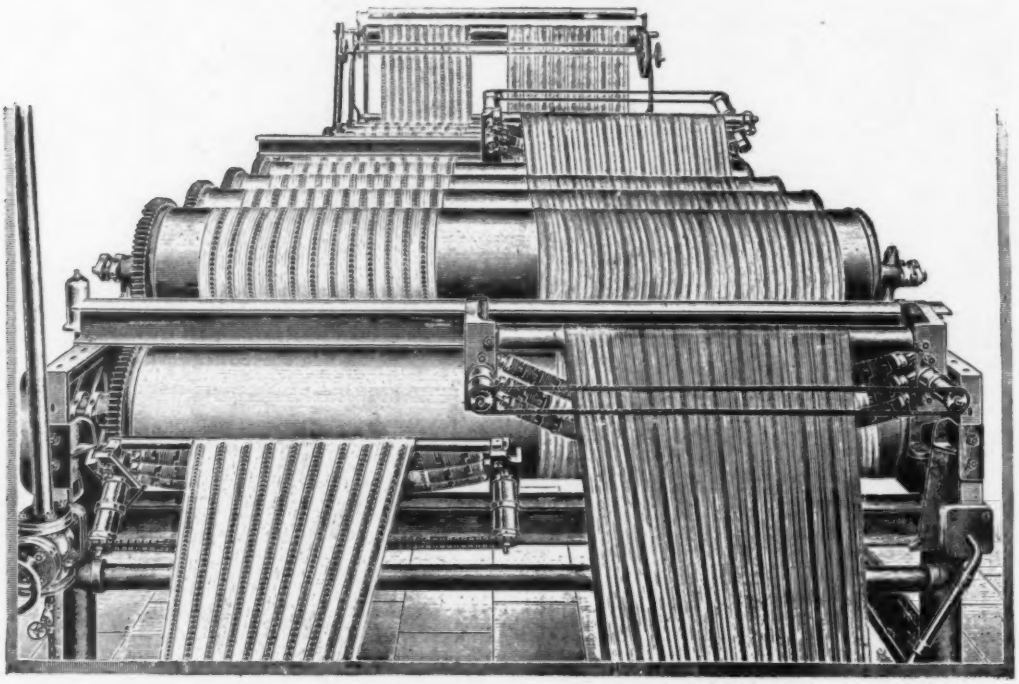
"Hurricane" Dyeing, Drying and Finishing Machinery
Power Screw and Hydraulic Presses

6721 Germantown Ave., Philadelphia, Pa.

Thomas Leyland & Co.

F. T. WALSH, Manager

Gums, Dextrines, Corn, Wheat and Potato Starches. Soluble Starches, Finishing Gums, Softeners, Soluble and Turkey Red Oils, Sizes, etc., etc.



Sole Manufacturers and Agents for United States and Canada.

The Wm. Mycock Regulating Cloth Expander

View showing application of two Three Bar Expanders in front of a double width drying machine, arranged to overlap each other, so as to UTILIZE FULL WIDTH OF DRYING CYLINDERS

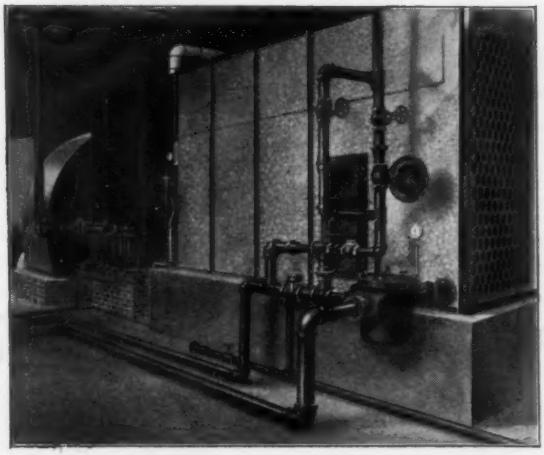
This view also shows an additional Three Bar Expander fixed part way down the machine, for the purpose of recovering shrinkage in special cases.

These Expanders can be FIXED TO ANY PART OF A DRYING MACHINE, either above or below, without the removal of a drying cylinder.

Also scutchers, piece end sewing machines and other Mycock specialties.

60 India Street, Boston, Mass.

The Carrier System



A Cotton Mill Installation.

One apparatus for an entire mill giving different humidities desired in different departments.

Heats and Humidifies the Mill in Winter.
Cools and Humidifies the Mill in Summer.
Ventilates and Humidifies the Mill Always.

We give results and GUARANTEE them.

We Guarantee to maintain and control automatically, within two percentage, under all conditions, any percentage of humidity specified.

We Guarantee to heat the mill in winter to any temperature specified.

We Guarantee to thoroughly wash and cleanse the air, removing 98% of the dust, dirt or other foreign matter entering the apparatus.

It is a plain business proposition with you and a plain engineering proposition with us.

The following have mills equipped with the Carrier system:

The Botany Worsted Mills, ... New Jersey	Lily Mill & Power Co., ... North Carolina
Klots Throwing Co., ... Maryland	Dudley Shoals Cotton Mills, ... North Carolina
Huguet Silk Co., ... New York	Peerless Mills, ... North Carolina
Walterboro Cotton Mills, ... South Carolina	Farr Alpaca Co, ... Massachusetts
Shamokin Silk Mills, ... Pennsylvania	Eagle Mills, ... Canada

Recent contracts procured;

Duplan Silk Co., Pennsylvania — American Thread Co., Keer Mill No. 3, Mass. — Wabasco Cotton Co., Canada
Klots Throwing Co., Pennsylvania

Carrier Air Conditioning Company

of America

39 Cortlandt Street, NEW YORK

100 C

TAPES, BRAIDS AND RIBBONS

for the Mill and Manufacturing Trade

WICK NARROW FABRIC CO.
PRODUCERS OF SPECIALTIES
726-728 Market Street, Philadelphia
Address Department Z

STARCH.

Increased efficiency in

WARP SIZING

with LESS COST by using

Adhesive Value:

One pound of "C. P. SPECIAL" contains a sizing value of from one to one and a half pounds of any other starch.

"C. P. SPECIAL" requires no heavying or stocking up after standing.

Sizing Qualities:

"C. P. SPECIAL" dries without sticking on slasher cylinders.

"C. P. SPECIAL" penetrates yarn thoroughly.

"C. P. SPECIAL" increases tensile strength of yarn from 5–10 percent.

"C. P. SPECIAL" boils quickly and produces good, smooth size.

Weaving:

Warps sized with "C. P. SPECIAL" draw in and weave to entire satisfaction.

"C. P. SPECIAL" will not dust off under your looms.

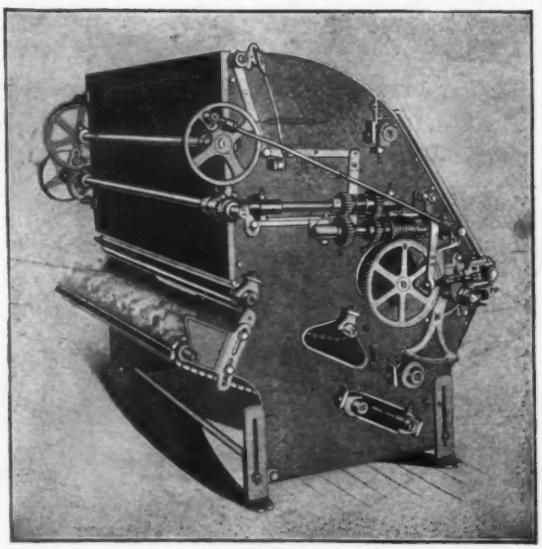
Demonstration:

We are ready to demonstrate in your mill—free of cost—just what "C. P. SPECIAL" will do.

100 lbs. "C. P. SPECIAL" will be sent on request to any responsible Cotton Manufacturer for demonstration purposes.

Corn Products Refining Co., New York, N. Y.

THE FISHER PATENT CARD FEED



Write Us For List of Mills Where Machines Are Used.

Woonsocket Machine and Press Company

WOONSOCKET, R. I.

1000 Gallons of Soft, Pure Water

20 Barrels for Two Cents

for 2c.

That is the average cost of making hard water soft with the

Dodge Automatic

"EUREKA"

Water Softener and Purifier.

for 2c.

For the price of a postage stamp you secure 1000 gallons of a water that will produce

Level Dyeing.

The wool is *clean* because it has been scoured and washed in water that is free from impurities that adhere to the wool, consequently the coloring matter can penetrate and affix itself in *every* portion of *every* fibre, and no *spots* or *streaks* mar the appearance of the finished piece.

Consider the SOAP SAVING—it amounts to the difference between the soap required to produce "suds" on your *hard* water as against practically a RAIN water.

It is not necessary to "doctor" our treated water.

We can CLARIFY your turbid river or lake water. By using the treated water in your boilers, as well as in the manufacturing processes, you prevent scale and all of its attendant evils and expenses.

A postal card request will bring you our interesting book "No. 414" which tells all about the "Eureka" System.

Dodge Manufacturing Co., Mishawaka, Ind.

P. S.—These are some of our textile mill customers:—

South Bend (Ind.) Woolen Co.
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Burson Knitting Co., Rockford, Ill.
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COMMUNITY "FRICTION CHAIN" FOR LOOMS

PERFECTS THE WEAVE

Insures even and uniform friction.

Not affected by dampness or dryness.

Will not stretch. Adapted to heavy or light weaving.

Will outwear cord, band or rope many times over.

Saves labor.

Easily adjusted.

Carried by all the leading supply houses.

We earnestly solicit your orders.

ONEIDA COMMUNITY, Ltd.
ONEIDA, N.Y.

FACTORY FIRES COST MONEY

not only in the loss of the building and the stock, both of which can be insured, but by

From "Reinforced Concrete in Factory Construction."

A LOSS OF TRADE

which cannot be covered by fire insurance, *100% of the disastrous fires* totally destroying buildings and stock which occur yearly *could be averted* by a CONCRETE BUILDING built with "ATLAS" Portland Cement.

Every factory owner is guilty of Gross Negligence unless he gives this type of construction careful consideration when planning a new building.

Our book—for the Manufacturer and Merchant—"Reinforced Concrete in Factory Construction," contains numerous illustrations and descriptions of Concrete Factories. Send for it at once—free upon request—postage **10** cents.

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NONE JUST AS GOOD.

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TEXTILE MACHINERY

Winding Machinery For filling yarns or for hosiery or knit goods. For filling we are able to meet any proposition that comes along. For hosiery yarn in the skein, our latest improvements will prove all that we claim as true.

Spooling Skein spoolers to handle the fine yarns and give production are one of the features we are holding up and are able to prove all we say under a guarantee.

Warping Wet or dry section work with pinless attachment obviates pinstripes or section marks.

Sizing Drying cylinders with many new features to get yarn dry without baking the size at the same time get rapid results.

All the machinery that is made here will go out on the guarantee of what we will do if not satisfactory.

There is nothing made in this works but what qualifies itself for our future benefit.

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"BUILDERS OF THE BEST"

Labor Saving Machinery for Dyeing Singeing and Finishing

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IN SULPHUR, ANILINE, DEVELOPED BLACKS AND COLORS
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If you wish to **SAVE LABOR** and **DYE STUFF** and do **BETTER WORK** in your dye house see

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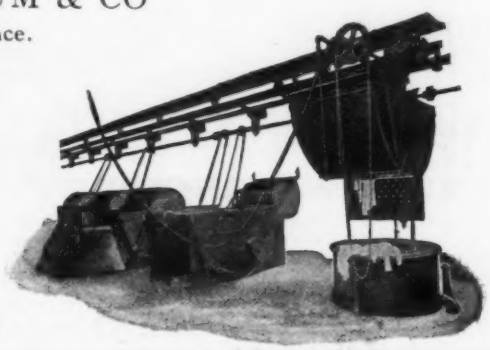
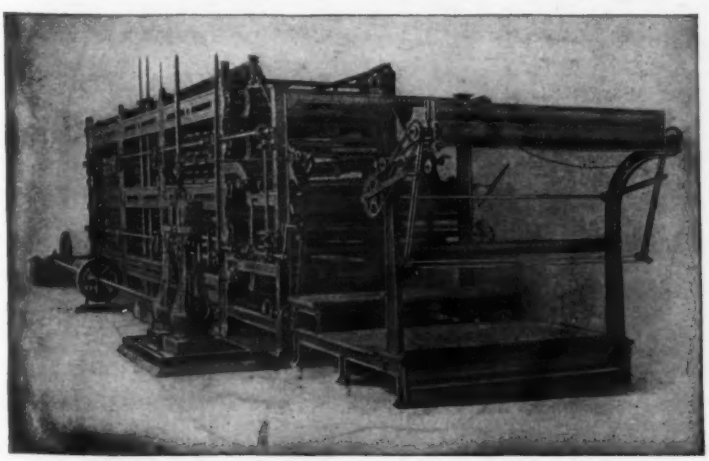


TENTERING AND DRYING MACHINES

WITH LOW DOWN FEED. **PATENTED FEBRUARY 26, 1895.**



Tentering and Drying Machines on Pipe System. Special Dryers for Heavy Felt Goods. Hot Air Drying and Tentering Machines.

Fulling Mills, Washers, Chinchilla and Whitney Machines, Whipping Machines, Cone Willows, Marsden & Blamire Lap Feed, Dyeing Machines for Piece Goods, Soaping Machines, Wringing Machines, Jigs (Double or Single), Dewing Machines, etc. Crabbing Machines for worsted. Made either single, double or triple.

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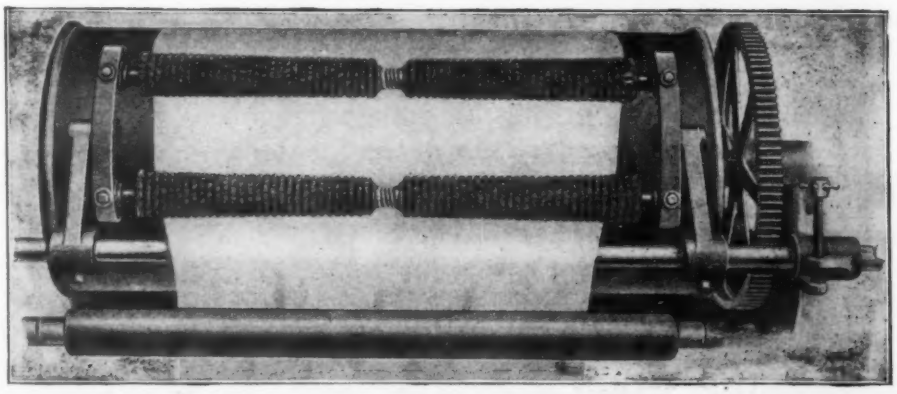
The New Bristle Cloth Stretcher

(Patented)



THE NEW PRINCIPLE FOR STRETCHING CLOTH

from the centre toward the selvedge. Each bristle catches a different thread of the fabric at the same time. A manufacturer whose name is famous the world over recently said of this stretcher: "It is the greatest invention in the line of finishing machinery since I have been in the business." ¶ **Gets the full width of the goods**; stretches all classes of fabrics with equal efficiency. No dirt, grease, oil, or complications.

American Finishing Machinery Co., 45 Milk St., Boston
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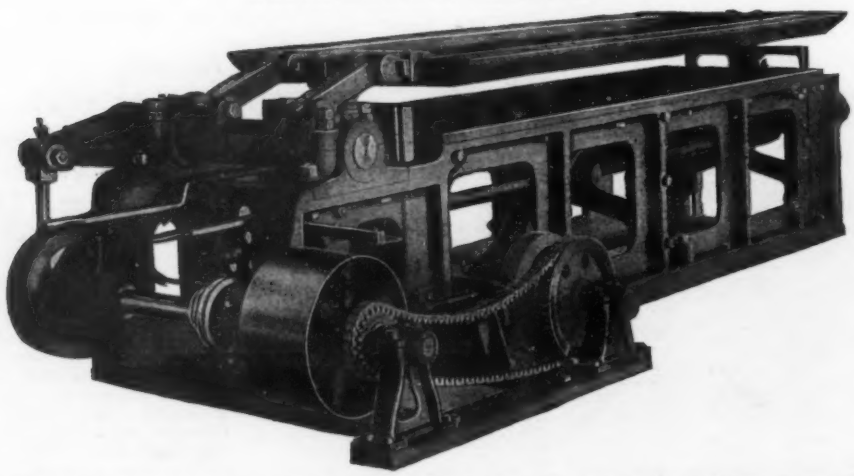

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Chilled and Soft Iron Rolls. Heavy Transmission Machinery.
Machine Molded and Machine Cut Gearing, to 20 ft. diameter, Etc., Etc.
Heavy Castings, in Gray Iron or Semi Steel.

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Preparing and Spinning

Flax, Hemp, Tow and Jute

Special Machinery for the Manufacture of Twines, Rope Yarns and Binder Twine

Good's Combined Hackling and Spreading Machine.

Long Reach Screw-Gill Drawing Frames. Chain-Gill Drawing Frames with Apron Heads.

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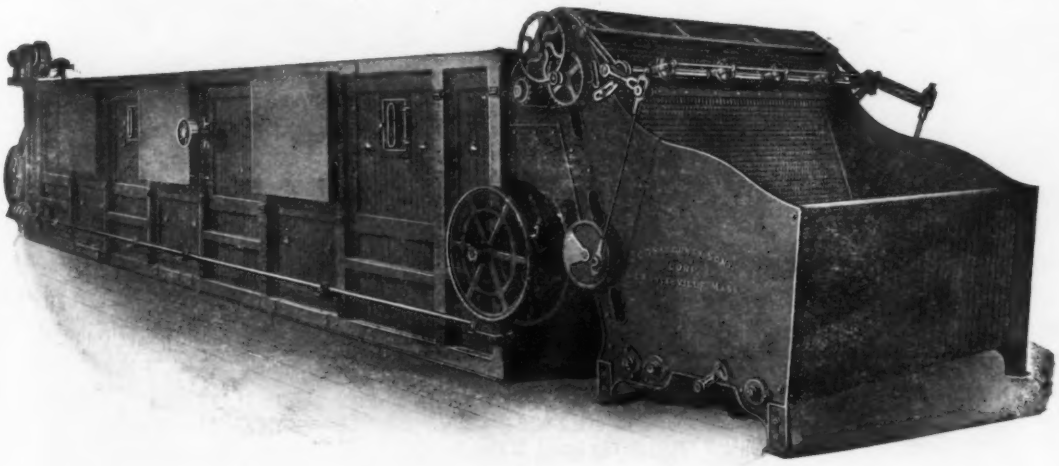

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OF EVERY DESCRIPTION FOR COTTON, WOOLEN AND WORSTED.

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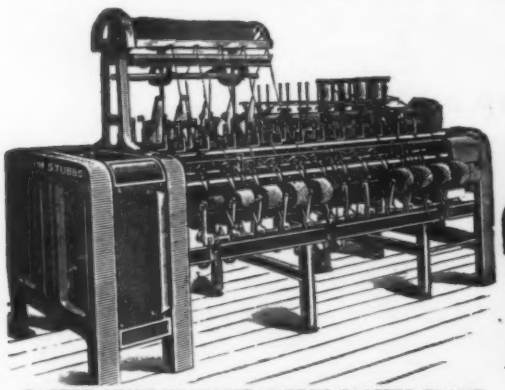
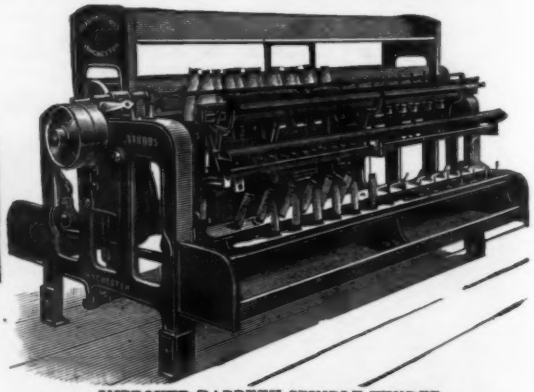
For Winding, Gassing, Reeling, Preparing, Polishing and Bundling Yarns.



PATENT QUICK TRAVERSE COTTON GASSING FRAME.



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With Patent Tapering Motion, for Single Flanged Bobbins.

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DOBBIN'S ELECTRIC SOAP, ABSOLUTELY PURE AND UNIFORM.

Dobbins' Hard Water Soap, a Specific for Hard Water or Water Charged with Chemicals.

AMMONIATED POTASH SALTS FOR SCOURING.

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FREE SAMPLE SENT FOR TRIAL ON REQUEST.

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Received the HIGHEST AWARD on recommendation of the FRANKLIN INSTITUTE for

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Is the largest manufacturer of HUMIDIFIERS in the World. The last twenty years receiving the HIGHEST AWARD in this country and Europe for its AIR-MOISTENING SYSTEM. EIGHT GOLD MEDALS and others.

The Only Perfect System of Air Moistening

Has Been Adopted by the Representative Manufacturers of this Country.
The only System adopted in the Textile Schools. Write for booklet "T" on Humidification.
Legal proceedings will at once be taken against infringers and users of infringements.

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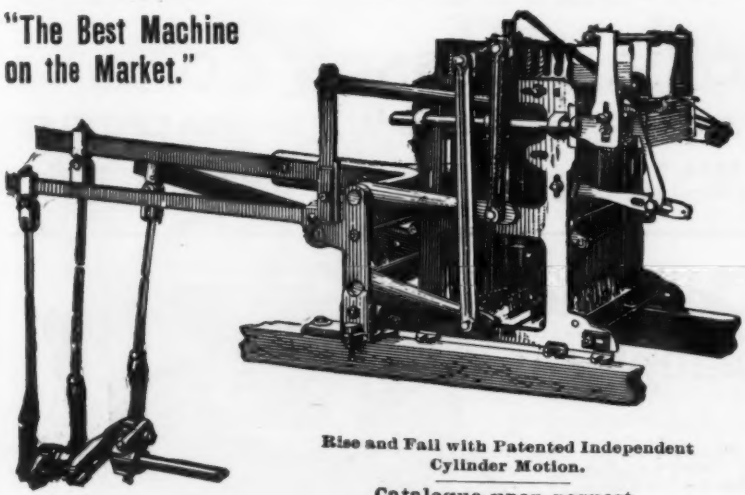

Rise and Fall with Patented Independent Cylinder Motion.

Catalogue upon request.

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HALTON JACQUARD

Original Fine Index Machines

Single Lift, Double Lift, Double Cylinder, Rise and Fall, Crossborder,

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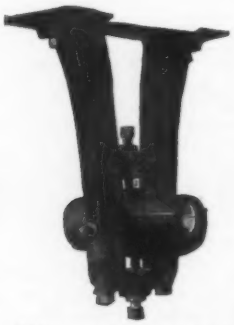

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Shafting Pulleys
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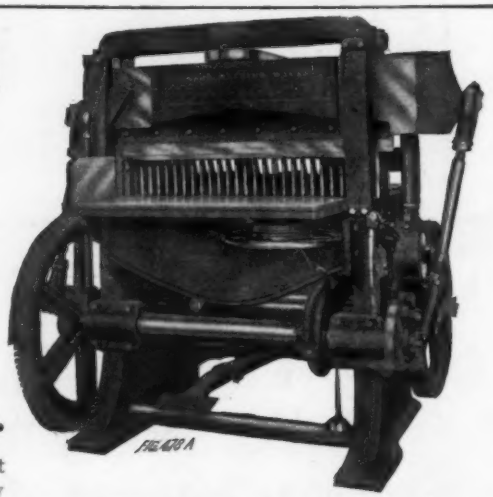
Pinking Cloth and Cutting Samples on Oswego Cutting Machines

is easy, quick, economical and correct.

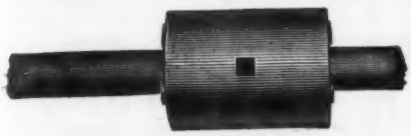


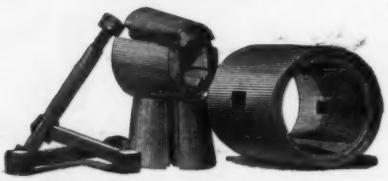
The attractive samples that can be cut on Oswego Cutters bring business. Ninety sizes and styles of Oswego and Brown & Carver Cutters are made. One of these is exactly suited to your present needs. A large number of these machines are in active operation cutting cloth.

Also Makers of Die Cutting Machinery.

Oswego Machine Works, Oswego, N. Y.

Niel Gray, Jr., Proprietor.





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DOUBLE CONE VISE COUPLING

has a way of holding shafts together, that no other COUPLING can equal.

WILLIAM SELLERS & CO., INCORPD.

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Makers of

SHAFTS,
COUPLINGS,
PULLEYS,
HANGERS,

and all most approved appliances for the Transmission of Power.

SEND FOR CATALOGUE AND PRICE LIST.

MACHINE TOOLS.
INJECTORS. POWER CRANES.

Patented in the United States and Foreign Countries.

The American
WROUGHT STEEL
PULLEY

Is a parting PULLEY and can be applied without stripping the shaft.
It is Light, STRONG, and lasts a lifetime.
It clamps to the shaft perfectly—keys and set-screws superfluous.
Interchangeable metal Bushings to fit shafts of different sizes.
Particularly adapted to TEXTILE manufacturing.
Sold by the Leading Supply Houses all over the WORLD.

Send for Booklet.

The American Pulley Company
29th and Bristol Sts., Philadelphia, Pa.

ONEIDA

STEEL PULLEYS WILL SOLVE YOUR PULLEY PROBLEM FOR ALL TIME.
NOTICE THE DESIGN AND CONSTRUCTION.

MADE IN WIDEST RANGE OF SIZES OF ANY STEEL PULLEY IN THE WORLD.
DIAM.—6 TO 104 IN.
FACE.—3 TO 40 IN.
BORE—1 TO 8 IN.

Oneida Steel Pulley Co.,
Oneida, N. Y.

THEY ARE BUILT TO FILL ALL CONDITIONS OF SERVICE AND EXCEL IN DURABILITY AND EFFICIENCY. THEY ARE LIGHT, STRONG AND ARE PERFECTLY RIGID.

SOLD BY MILL SUPPLY HOUSES EVERYWHERE SEND FOR OUR LATEST CATALOG AND DESCRIPTIVE MATTER SHOWING CONSTRUCTION ALSO ILLUSTRATIONS OF LARGE SIZES.

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THE

"Turbo" Humidifier is not an Atomizer

Do not confuse the "Turbo" with *any atomizer head. It is not an atomizer* —never was—never will be.

It's a "pulverizer" head.

It applies the motion of centrifugal force to the air or steam in a way that actually pulverizes the water and secures

Complete Vaporization

It's the only head that does this.

It does it in so neat, novel and complete a way that all the objections that existed with the atomizer heads are removed.

Complete vaporization means efficiency —no dripping.

Remember too, we can give you a system of

Air Cleaning

at practically no additional cost over that of our humidifier installation.

The larger your job—the more favorable is our price in comparison.

As to results—we'll leave that to our customers.

Our catalogue tells more—and is yours for the asking.

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EASTON AND BURNHAM MACHINE CO.

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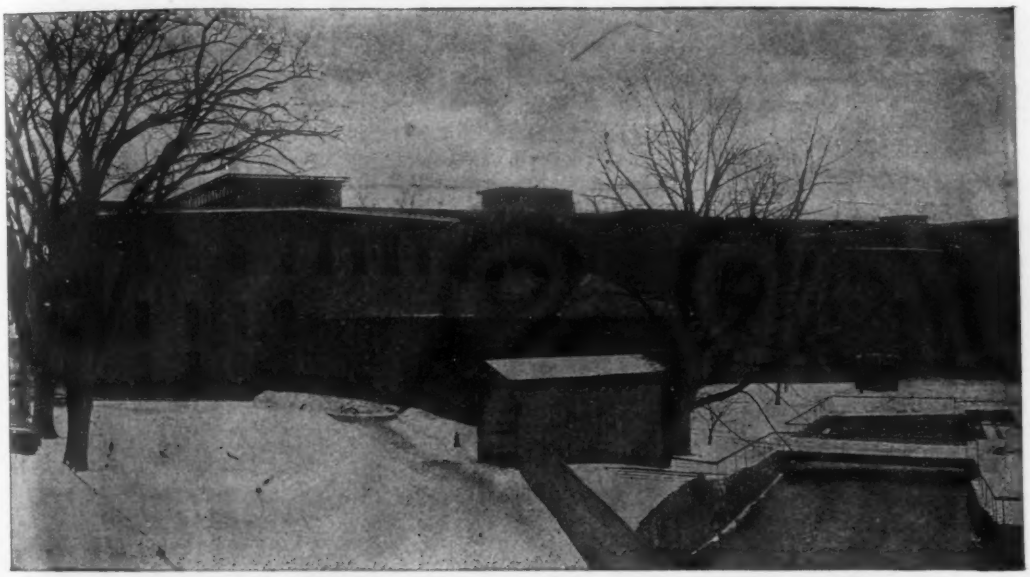

BOSTON MANUFACTURING CO., WALTHAM, MASS.

LOCKWOOD, GREENE & CO.,
ARCHITECTS AND ENGINEERS FOR INDUSTRIAL PLANTS
93 FEDERAL STREET

BOSTON, Dec. 22nd, 1902.

FRANK B. GILBRETH, ESQ., Federal St., Boston.

Dear Sir:—We are pleased to express our approval of and satisfaction with the manner in which you have executed the work for the Boston Manufacturing Company at Waltham, Mass., under our plans and supervision.

This work has been quite difficult to execute, by reason of its being for extensions and improvements of a large mill which had to be kept in continuous operation while your work was going on. In the prosecution of this you have used good judgment and have accommodated both our clients and ourselves, and yet accomplished the work quickly.

This we believe is the sixth or seventh job which you have executed for us, and we are pleased to say that the work has all been done to our entire satisfaction. We hope soon to entrust some further work to you for execution.

Yours, truly,
LOCKWOOD, GREENE & COMPANY.

Messrs. Lockwood, Greene & Co. have recently awarded to us the largest construction contract that has been let since the Chelsea fire. This contract calls for the rebuilding of the entire box-making plant of the Atwood-McManus Co., which was destroyed in the second Chelsea fire. It involves the construction of a power plant with two tall chimneys, a receiving building 345 feet long, an office building, a stable 200 feet long, a saw-dust and kindling wood building, a two-story factory building 350 feet long by 200 feet wide, and a warehouse 375 feet long by 68 feet wide.

We solicit contracts for works of magnitude where the time for construction is limited. Over 90% of our work consists of repeat orders.

FRANK B. GILBRETH

General Contractor

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Main Office, 34 West 26th Street, - - New York

Average selling price about $2.00 per ton

A clear profit of over $1.00 per ton for every ton mined. Photograph shows thickness of vein, ease of working, and excellent quality.

"Battle Creek" seam of coal which underlays 7000 acres of coal land in Tennessee owned by this Company.

The Cross Creek 6% Gold Bonds carry with them a bonus of preferred stock, giving a good income return on the bonds and probable very handsome profit on the stock.

Write for particulars.

Cross Creek Coal Company,

1006 Mutual Life Bldg., Buffalo, N. Y.

Cross Creek 6% First Mortgage Sinking Fund Gold Bonds

This bond issue (**$250,000**) is a first lien on **7000** acres of coal lands and all improvements. Every ton of coal mined pays into the sinking fund **10c,** so that each year a certain portion of the indebtedness is paid off. The interest, payable semi-annually, at the office of the Hamilton Trust and Sav. Bank, Chattanooga, Tennessee, is **6%**, and the preferred stock accompanying the bonds is entitled to **6%** of the earnings, ahead of the common stock.

As showing the development of the coal business in the United States, the United States Geological report shows that in 1814 the total production was **22** tons; in 1906 the tonnage was **414,157,278** tons and in 1907, **480,363,424** tons, or an increase in tonnage in one year of over **66,000,000,** or more than the total production in 1878.

Less than $50,000 of these bonds remain to be sold. Early application is suggested

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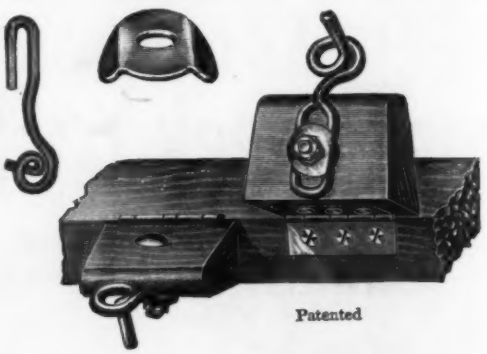
The accompanying illustration shows the **Palmer** adjustable thread guide for spinning and twisting. This guide is **Adjustable** in all directions and can be rigidly and permanently fixed. **Thread** boards and rails of metal which are expensive are not necessary with this **Guide**



Patented

SEND two clappers for free samples for circular.

The Palmer Revolving Guide for Wet and Dry Twisting

Patented

Lays the fiber closer
Makes a smoother twist
Saves power
Will outwear many wire guides

THE I. E. PALMER CO., Middletown, Conn.

TRADE N.P.R.H. MARK
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The New Process Trade Mark

Is the standard of excellence on raw hide pinions, corresponding to the sterling mark on silver. It guarantees that the material of which the pinion on which it appears was made was treated in a hide plant, devoted to the production of raw hide FOR GEARING ONLY and is therefore the strongest and most durable made for this purpose. And it further guarantees the best of workmanship and that these qualities are backed by a concern whose experience and reputation are unexcelled. Look for this mark on YOUR pinions.

The New Process Raw Hide Co.
Syracuse, N. Y.

C. & K. Dobbies

are best adapted to every requirement — always the leaders in efficiency and economy.

We apply them to any and all makes of looms.

Crompton & Knowles Loom Works

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Reclaimed Olive Oil

A Pure Distilled Recovered Oil

Distilled Wool Grease Oleines

For Woolen Mills

"THE NATURAL WOOL OILS"

Olive Soft Soap for Scouring **Liquid Soluble Soap**

Samples Furnished and Prices Quoted on Request.

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CENTRIFUGAL

Oil Separator

MOTOR WOUND FOR ANY VOLTAGE.

Separates oil from bolts, nuts, and scraps of all kind—oil that would otherwise be wasted, and makes it as good as it ever was, for further use. **Send for Catalogue.**

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109 Beach Street, Boston, Mass.

Incorporated 1864. Founded 1845.

General Electric Company

Tungsten Lamps

If you want to get more light without increasing your light bill, or if you want to relieve your overloaded lighting plant, GE Tungstens will help you. Furthermore the quality of the light given by GE Tungstens is almost equal to daylight. These are good points to remember when you are considering the lighting question.

Mill Power Office, 84 State St., Boston, Mass. **Principal Office: Schenectady, N. Y.** Sales Offices in all large cities. 1897

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In Textile Mills is Our Specialty

15 Years Experience Highest References

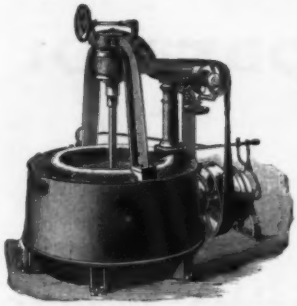
MODERN LIGHTING SYSTEMS
EFFICIENT POWER PLANTS
RECONSTRUCTION OF OLD PLANTS

Watson-Flagg Engineering Company

Contracting Engineers

Paterson, N. J. **New York, N. Y.**

Hydro-Extractors, Exhaust Fans, Dye Tanks and Tubs

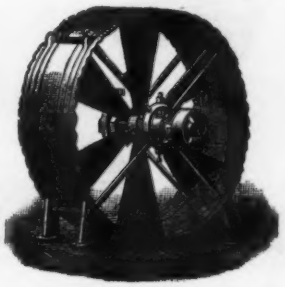


Adjusts itself to an uneven load, runs without vibration
Unusual capacity for high-class work

Bridger Hydraulic Cutting Press

Send for Catalog

Tolhurst Machine Works
Fulton St., and 6th Ave., Troy, N. Y.



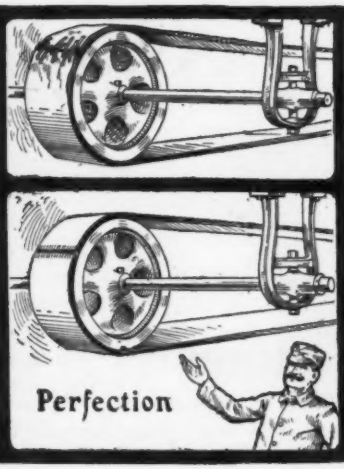
Moves more air than any other fan made. Very efficient under widely varying conditions. Noiseless and does not obstruct the light

K-A Electrical Warp Stop

MEETS EVERY CONDITION

EQUIPPED WITH OPEN DROP WIRES OR CLOSED·
OPERATED WITH LEASE OR WITHOUT.
POSSESSES LARGE RANGE OF ADJUSTMENT.
OCCUPIES SMALL EXTENT OF SPACE·
STANDS FOR CERTAINTY—SAFETY—SAVING.
AN ATTRACTIVE PROPOSITION IN PRICE AND RESULTS.

K-A Dept. Mossberg Wrench Company
Central Falls, R. I.



A Jackson Joint

MADE WITH THE

Jackson Belt Lacer

is as flat and as smooth as any other part of the belt. *No hump*, consequently *no bump* as it passes over the pulley. No *slipping*, *pounding* or *strain*.

A five inch belt can be laced in three minutes at a cost for material of less than one cent, and for each inch of the belt's width the lacing will withstand 1900 lbs. strain. Connected or disconnected in a second by inserting or withdrawing the pin from between the intermeshing steel wires. Write for booklet.

Birdsboro Steel Fdry & Mch. Co., Birdsboro, Pa.

WILSON & CO., BARNSLEY, Limited

BARNSLEY, ENGLAND.

Absolutely secure combination of Shield and Bobbin guaranteed.

Loose Shields Impossible.

Specialties: PATENT "LOCKFAST" and "CLIMAX" Shields. ENAMELLED CONDITIONING BOBBINS, Impervious to Steam, Moisture or Oil.

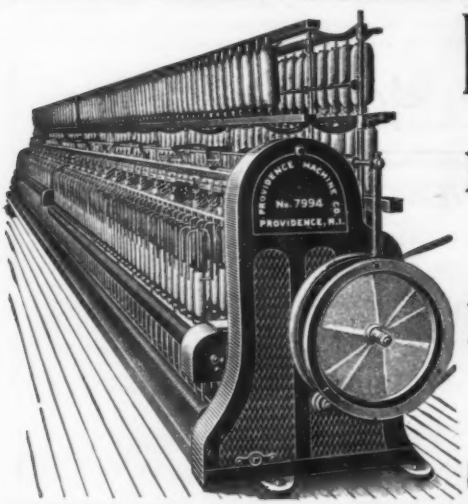
TRADE MARK.

GOLD MEDAL St. Louis, 1904. DIPLOMA d'Honneur Liege, 1905. Highest Awards for Bobbins.

Added Strength and Absolute Security.

Samples and Prices on Application.

SPEED & STEPHENSON, Agents for U. S., 170 Summer St., Boston, Mass.



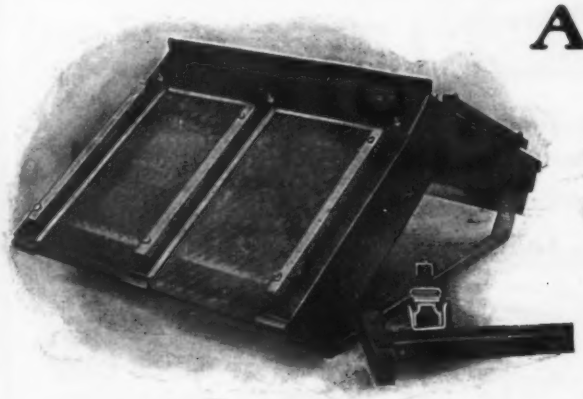
Providence Machine Co.

Manufacturers of

Improved Cotton Roving Frames

Improved Worsted Roving Frames

564 Eddy St., - - PROVIDENCE, R. I.



Anti-Pluvius Skylights

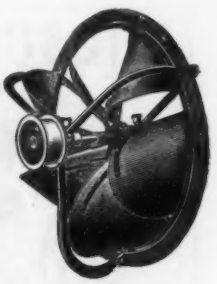
are easily erected and kept clean. Cost less to maintain than ordinary forms of construction. Anyone can erect. No putty or cement required. Felt rest for glass. Bridge for walking on.

Prices are reasonable.

Write today for all the facts about Anti-Pluvius Skylights.

The G. DROUVE CO.,
Bridgeport, Conn.
Western Office, 40 Dearborn St., Chicago.
Manufacture also
The Lovell Window Operator

Clear the Dyehouse Atmosphere



and thereby make bigger profit and better product. Fog filled dyehouses are profit losers, so why permit this leak to go unstopped.

Get A Berry Wheel

The Berry System is Most Efficient and Economical for Drying.
Send for Circular T.

A. HUN BERRY, 23 West First Street, Boston.

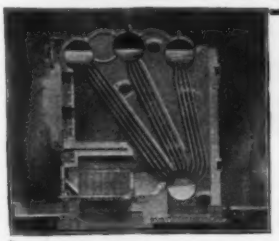
WILLIAM BODDEN & SON, Limited

The "BODDEN" Flyer

For QUALITY OF FINISH
For QUANTITY of PRODUCTION
HAS STOOD THE TEST OF YEARS

Sole Agents for U. S. A.

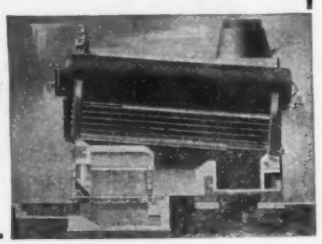
Thomas Mayor & Son, Olney Street, Providence, R. I.



The Murphy Automatic Smokeless Furnace

Burns Slack with Great Economy

The Murphy can be installed under any type of fire-tube or water-tube boiler and to units of any size.



SETTING UNDER TWO TYPES OF BOILERS SHOWN HEREWITH

MURPHY IRON WORKS

DETROIT, MICH.

BRETON OILS FOR WOOL

A grade for every textile requirement

Tell us about your goods and we will tell you about the right "Breton." Order a barrel. Sold subject to test.

BORNE, SCRYMSER COMPANY, 80 South Street, New York

Boston Fall River Philadelphia Works, Claremont, N. J.

3 Necessities

FOR EVERY

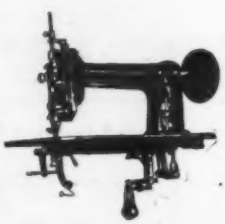
Textile Manufacturer

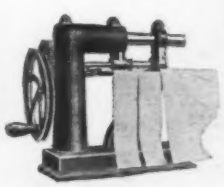
D & H 4207

Counter for registering picks, or production, yards or pieces.

L & E
No. 1--1000

Numbering Machine for numbering and marking piece goods for identification.





D & H No. 9

Sample Cutting Machine for pinking samples. The modern time and money saving way.

The Durbrow & Hearne Mfg Co.

12 Wooster St., NEW YORK.

DINSMORE

Mill Sewing Machines

No. 9.—Portable Foot-Power Rotary Sewing Machine

It is especially adapted for use in Cotton and Woolen Mills, Bleacheries, Print Works at the Printing Machines, in Dye Works, Cloth Rooms, at the Fulling Mill, Shears, Calendars, Gigs, Drying Machines, etc., or any of the different finishing processes in textile mills.

Manufactured by the

DINSMORE MANUFACTURING CO.,

Salem, Mass., U. S. A.

LUMBER

AT

½ PRICE

USE

AVENARIUS CARBOLINEUM

Wood Preserving Paint on

Floors, Sills, Joists, Dye Tanks and Vats

and other woodwork exposed to steam, acids or variations of temperature.

BULLETIN 29 UPON REQUEST.

CARBOLINEUM WOOD PRESERVING CO.

347 West Broadway, New York

SAVE POWER BELTING BEARINGS

Have You Tried Shultz Sable Belting?

Mr. H. W. Rice, Mgr., J. Wilbur Co., Philadelphia, Pa., writes:

"Some time ago we wished to determine what belting to adopt. We placed three belts of the best makes on machines running under identical conditions, which were very severe.

"We are replacing one of the other belts with a new one of yours, while the old one of your make is yet in good condition."

SABLE BELTING will save money for you, too, if you give it a chance. Tell us your requirements and we will send a belt for 60 days free trial. If it doesn't do all we say, or you are not well pleased with its performance, you can send the belt back.

Write for booklet.

Shultz Belting Company

St. Louis, Mo.

New York Boston Philadelphia

No. 33

Westinghouse Textile-Motor Talks

"*Textile Motors Talks*" are issued frequently. They contain a record of the progress of *individual-motor drive* as applied to textile machines. *Increased production* and *improved quality* together with other advantages, are the reasons for this important development in driving textile machines.

You cannot afford to be without them. A postal mailed today will bring the January and future issues.

Ask Westinghouse Electric

Westinghouse Electric & Mfg. Co.

Atlanta Charlotte Philadelphia
Boston New York and other large cities

WATER TOWERS
IRON OR STEEL

for Fire Protection and Domestic Service.

Built in all sizes.

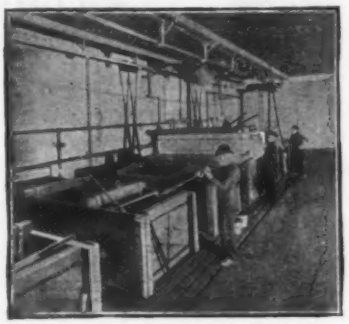
Write for catalogue.

Plans and prices cheerfully given.

Tippett & Wood, Phillipsburg, New Jersey

Waters' Dyeing Machine

This cut shows a new and useful machine patented by D. F. Waters for the dyeing of any color on Worsted, Woolen, Cotton and Merino Yarns.



Being successfully operated by some of the largest manufacturers in the country.
The saving of labor will more than pay for a machine in a few months.
Capacity; 2,000 lbs. a day per man.
Machine can be seen in operation at any time at my plant where I have 13 in operation all the time.

D. F. WATERS,
54 and 55 Wister St., GERMANTOWN,
PHILADELPHIA, PA.

We have the Largest Exclusive Spool Manufacturing Plant in the World with a capacity of 10,000 High Grade Bushed Spools per day.

Our splendid facilities guarantee prompt and immediate deliveries. Our equipment, than which no better exists, guarantees the highest grade of all hard wood spools of the highest quality procurable at medium prices.

COTTON WARPER SPOOLS, COTTON TWISTER SPOOLS,
WORSTED ROVE SPOOLS, CARPET CREEL SPOOLS,
WORSTED REDUCER SPOOLS,
WOOL WARP SPOOLS.

We can give one week deliveries on any order of the above kinds of spools.

Lestershire Spool & Manufacturing Co.,
LESTERSHIRE, N. Y.

Soft Water

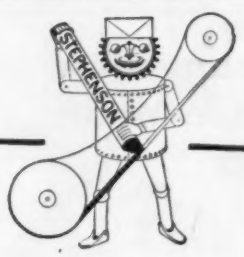
is a necessity
in the
ECONOMICAL OPERATION
of TEXTILE MILLS

The Bartlett Water Softening and Purifying Systems

furnish at a nominal cost pure, soft water irrespective of its original condition

Our Literature explains

NORTHERN WATER SOFTENING CO.,
MADISON, WISCONSIN.



If Quality Counts

and Results are what you are looking for, you will insist that your dealer gives you the Brand of **Stephenson** Bar Belt Dressing that is made especially for the kind of belts you use.

Red Label Brand for Leather Belts
Green Label for Rubber and Canvas
Black Label for Chain and Link Drives
Brown Label for Rope Drives

STEPHENSON MFG. CO.
Albany, N. Y.

New Bedford Textile School

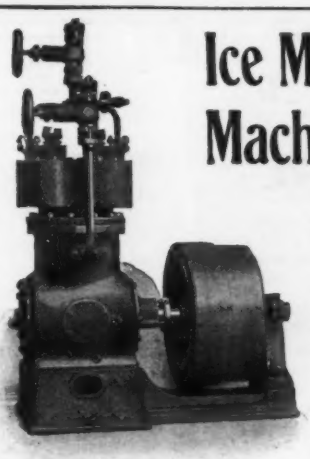
Day and Evening Instruction in

Picking,
Carding,
Combing,
Spinning,
Warp Preparation,
Weaving,
Designing,
Knitting,
Chemistry
and Dyeing.

CATALOGUE ON APPLICATION.

Address

New Bedford Textile School
New Bedford, Mass.



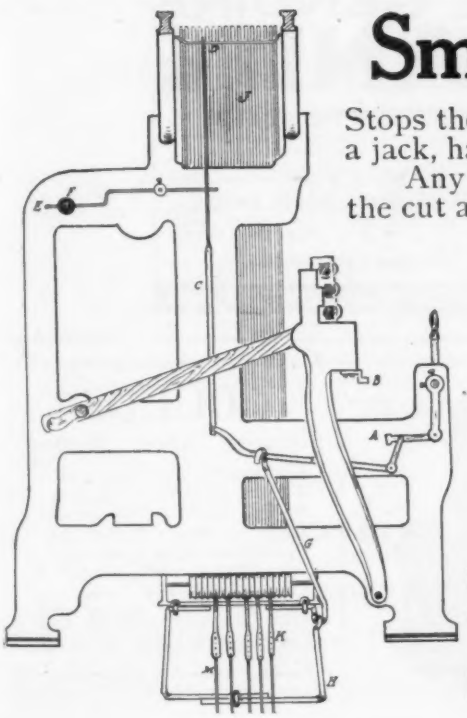
Ice Making Machines

of any capacity from 500 lbs. up, per day.

Send for catalogue.

Every Textile Mill can make money by installing its own Ice Making Plant: Ask Joseph Bancroft & Sons Co., Massachusetts Mills in Georgia, Erwin Cotton Mills, Duke, N. C., Belton Mills, Belton, S. C., or

REMINGTON MACHINE CO., WILMINGTON, DELAWARE.



Smash Protector

Stops the looms instantly and automatically if a jack, harness wire, or strap breaks.

Any practical man can see at a glance from the cut and description its many advantages.

IT WORKS LIKE THIS

When a harness jack drops out of place it strikes the wire D, pushing down the rod, C, which raises, A, up in time to strike B, as the lathe comes forward, knocking off the lever. E is a stopping lever which enables the operator to stop the loom from the rear. F, is a weight which keeps the apparatus in position. When a harness strap, K, breaks, it lets the wire M down on the frame, H, which pulls down on arm, G, and raises A, which strikes B, and stops the loom.

At the low price of $5.00 per loom it certainly will pay for itself in a very short time.

Manufactured by

Bamford & Smith Co., Providence, R. I.

TRADE-MARK VALUE

It is a a safe principle that the impression made by a trade-mark on the mind of a purchaser will be about as clear as the representation of the brand on the commodity.

The Kaumagraph Process of Textile Stamping is the only scientific method of stamping *all* fabrics with absolutely uniform results.

KAUMAGRAPH COMPANY
156 Fifth Avenue, New York

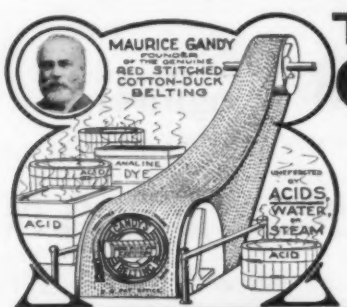
Improved Fulling Mills Washers and Dyeing Machines

RODNEY HUNT MACHINE CO.
Orange, Mass.

Boston Branch Office:
70 Kilby Street

Send for Circulars

See Advt. of Water Turbines on page 254



THE GENUINE GANDY

EARLY DEATHS IN THE DYE ROOM.

Lots of belts die in dye rooms when they should still be young and strong. They can't stand the steam and the acid fumes; from the very start they rot and wilt away. Moral: use

Gandy Red Stitched Cotton Duck Belting.

Built for just such service—lasts as long and works as well there as anywhere else. Write for particulars.

(*Gandy Belt Dressing puts new life in old belts.*)

THE GANDY BELTING CO. BALTIMORE, MD.

GOULDS

Efficient Power Pumps

are operated at a saving of from 50% to 60% over the actual cost of operating steam pump,—is this not worth while looking into. Write us for catalog.

THE GOULDS MFG. CO.
SENECA FALLS, N. Y.
New York, Boston, Pittsburg, St. Louis, Chicago, Philadelphia, New Orleans, Los Angeles, San Francisco, Louisville.

GOULDS

Efficient Power Pumps

are acknowledged the highest in efficiency of any pumps built. We build them exclusively for all operations—Tank Pumping, Dye Houses, Bleacheries, Cotton Mills, etc.

THE GOULDS MFG. CO.
SENECA FALLS, N. Y.
New York, Boston, Pittsburg, St. Louis, Chicago, Philadelphia, New Orleans, Los Angeles, San Francisco, Louisville.

Established 1870

John Heathcote & Son

Providence, R. I.

Builders of Improved

Cloth Tentering and Drying Machinery

for WOOLENS, WORSTEDS, FELTS, etc.

Built Upright or Horizontal with Low Down Feed

Ventilating Fans a Specialty

Send for Catalogue

The Economy Steel Tiering Machine

Allows the largest amount of stock to be stored in the smallest possible space, and yet all instantly accessible.

Handles heavy cases easily and quickly and does away with the old laborious hand method.

Makes one man equal to a gang in piling and storing.

Economy Engineering Co. 58-64 N. Jefferson St. Chicago, Ill.

ESTABLISHED 1825

GEO. SIMS & SONS, Engineers

Sherwood Street, Nottingham, England

MAKERS OF IMPROVED

LACE DRESSING PLANT

Starch Rollers in Brass or Mahogany

LACE GASSING MACHINES, ETC.

"BARLOW!"

The right name for the right goods. When you think of

Loom Pickers

think of "Barlow"—always.

J. W. B. Trade Mark

JOHN W. BARLOW CO., Spicket Mill, Lawrence, Mass.

A. H. HOWARD, Pres. ESTABLISHED 1866. HERBERT MIDGLEY, Supt.

A practical test will convince you we can furnish the

BEST
COTTON, WOOLEN and WORSTED

CARD CLOTHING

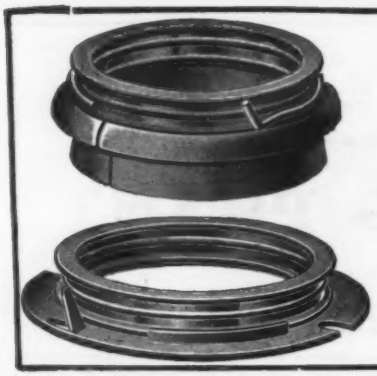
Howard Bros. Mfg. Co.

144 and 146 Vine Street, WORCESTER, MASS.

The equipment of the Clark Thread Mills with **C-W** squirrel cage motors is a sign of the times.

Our bulletin 105 Y describes this motor.

Crocker-Wheeler Company, Ampere, N. J.

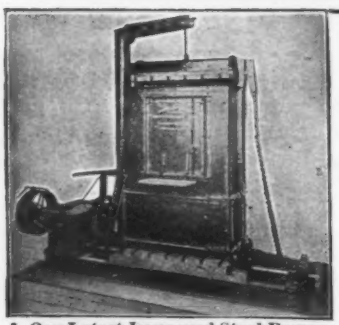


The Best That Money Can Buy

SPINNING RINGS.
TWISTER RINGS.
RING HOLDERS.
TRAVELER CUPS.
SILK RINGS.
TRAVELER CLEANERS.

Correspondence Solicited.

WHITINSVILLE SPINNING RING CO.,
WHITINSVILLE, MASS., U. S. A.



Our Latest Improved Steel Power Press with New Steel Link Chains

Minnich Baling Press

for all kinds of products.

Must turn out more bales with less labor and power than any press in the market.

Send for circular.

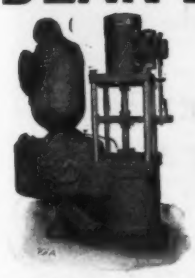
Minnich Machine Works,

Lancaster Co. Landisville, Pa.

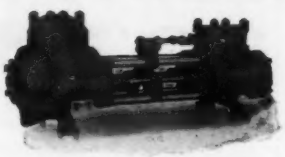
DEAN BROS. STEAM PUMP WORKS

INDIANAPOLIS, IND.

DUPLEX PUMPS, SIMPLE PUMPS
ATLANTIC BOILER FEEDERS
JET AND SURFACE **CONDENSERS** ELECTRIC PUMPS BELTED PUMPS, Etc.

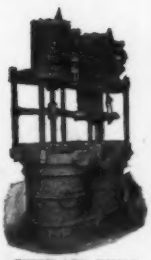


VERTICAL AIR PUMP AND JET CONDENSER



DUPLEX DURABLE PUMP

SIMPLE PUMP



TWIN AIR PUMP AND CONDENSER

To the Manufacturer who Invites Success!

THE HENDERSON CARD

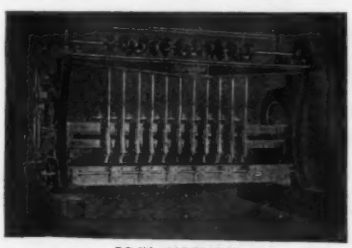
will increase your carding and improve the quality of your yarn with less waste, greater strength and increased production over any other system.

James H. Whittle Co. 150 Harlow St., Worcester, Mass.

Successors to the Cleveland Machine Works

Owners and manufacturers of the celebrated **Henderson Card** for Wool, Worsted, Cotton, Waste, Flax and Asbestos. Also manufacturers of

All Kinds of Woolen Machinery.



50-IN. MACHINE

L. F. FALES

MANUFACTURER AND BUILDER OF

SEWING MACHINES

FOR ALL PURPOSES WHERE A NUMBER OF ROWS OF SEAMS ARE REQUIRED

BUILT WITH ANY REQUIRED NUMBER OF NEEDLES

DESIGNER OF SPECIAL MACHINERY | WALPOLE, MASS. U. S. A. | PAPER SLITTING MACHINES

Get Your Supplies from the Manufacturers.

EXCELSIOR WOOL OIL COMPOUND AND COTTON SOFTENER

Established 1841

Burckhardt & Co.

Cincinnati, O.

The Excelsior Compounds are the best lubricating and softening products for wool, cotton, wool and cotton mixed. Eliminates the scouring process and effects large saving in time and soap. They will not gum in the cards.

Write for prices and particulars.

OLIVE OIL · TALLOW SOAP

LARD OIL

L. E. BARNES, Pres. and Treas.

The E. E. Burnham Co.

252 Lowell St., Lawrence, Mass.

Manufacturers of

Leather Belting
Cotton and Worsted Roll Coverers

General Mill Supplies

85% Pure Magnesia Steam Pipe and Boiler Covering

Eureka Fire Hose

THE BEST FIRE HOSE MADE.

(Trade Mark.)

For use in

Cotton Mills, Woolen Mills and Factories.

Seamless Woven and Rubber lined EUREKA COTTON HOSE, has no equal. Send for circular and testimonials.

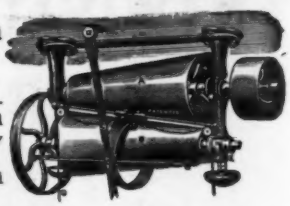
Awarded Gold Medal at the St. Louis Exposition, 1904.

EUREKA FIRE HOSE MFG. CO.

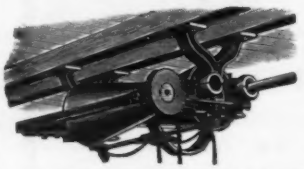
13 Barclay St., New York, N. Y.

Variable Speed Countershafts

The Evans Friction Cone Pulleys



will drive your machines at any desired speed from 1 to 6 by simply pulling a cord. They are guaranteed to do your work.



We'll furnish them for either floor or hanging use.
Over Ten Thousand Sets in Operation in this Country and Europe.
Send for Catalogue.

EVANS FRICTION CONE COMPANY
G. Frank Evans. - Newton Center, Mass.

1866 1908

HARTFORD STEAM BOILER INSPECTION AND INSURANCE CO. HARTFORD, CONN

41st Annual Statement

January 1, 1908

Capital, $1,000,000.00
Surplus, 1,006,868.06
Reserves, 2,053,326.74
Assets, 4,060,194.80

The HARTFORD was the Pioneer Company in the field of Steam Boiler Insurance, and it is the only company which makes a specialty of and does exclusively a steam boiler inspection and insurance business.

The HARTFORD is the only company whose entire talent and energies are applied to the study of steam, to the scientific construction and installation of boilers, and to their periodical inspection by expert mechanics.

The HARTFORD is the only company whose entire assets and resources are held exclusively for the protection of steam users, and the payment of losses occasioned by the explosion of steam boilers and for no other hazard whatsoever.

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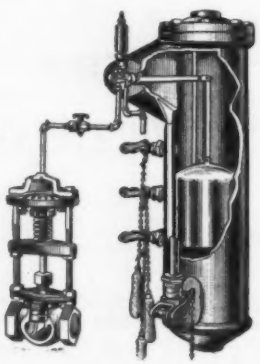

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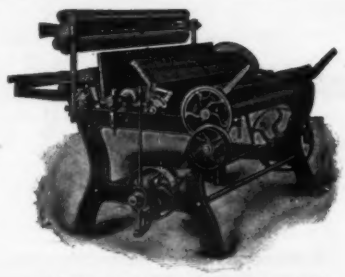

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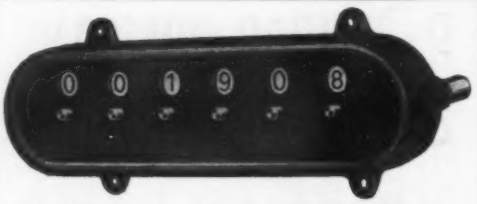

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The Kind That Give Satisfactory Results

FIG. 20.

LANE

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FIG. 22.

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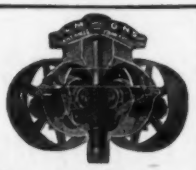

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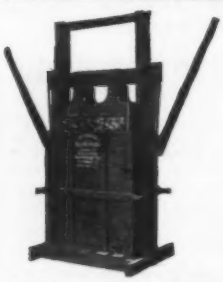

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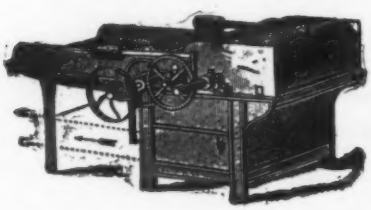

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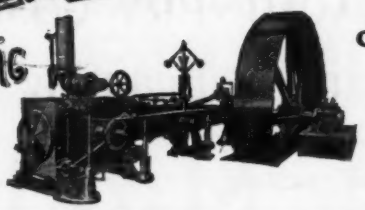

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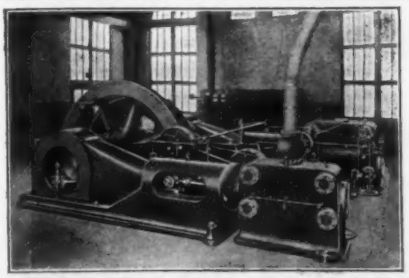

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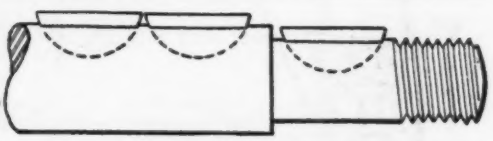

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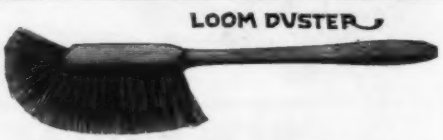

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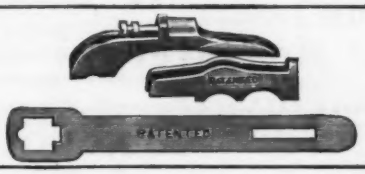

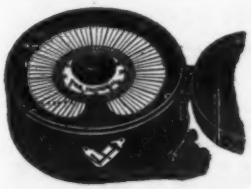

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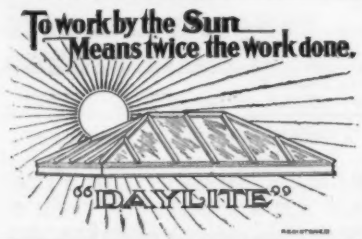

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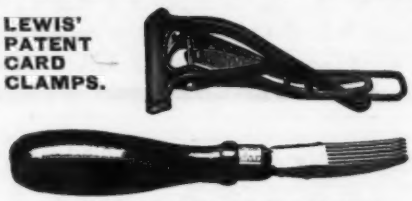

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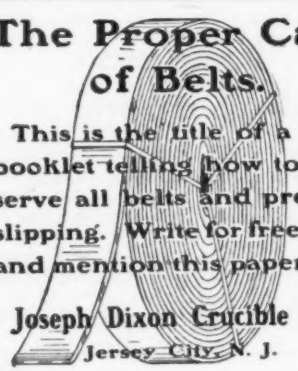

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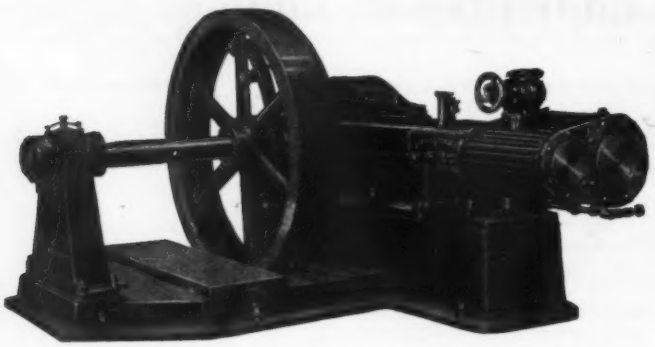

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We sell all textile books at publishers' prices. We publish technical books, especially on textile subjects, and make liberal arrangements with authors.

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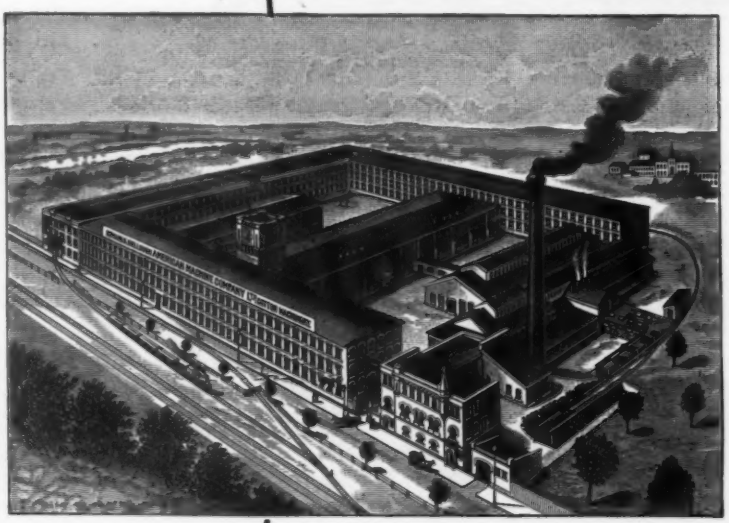

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TEXTILE WORLD RECORD

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The Textile World and Textile Record.

VOL. 36 (NEW SERIES.) January, 1909 No. 4

Monthly Comment.

A Happy New Year.

The Textile World Record extends the "Compliments of the Season," and offers its best wishes to its subscribers and advertisers for a "Happy and Prosperous New Year." It will work with them and for them to that end.

The Present Condition of the Wool and Worsted Industry in New England.

For the purpose of ascertaining the number of idle mills and the amount of idle machinery in the woolen and worsted mills of New England, we made a very careful and complete canvass of the mills during the last two weeks in December by mail and by personal interview with many of the larger manufacturers.

We did not include in the canvas the mills making shoddy or wool extracts unless they had carding, spinning or weaving machinery. Carpet mills were included in the worsted division. No knitting mills were included in our investigation.

The data compiled covers five hundred and thirty-five (535) mills which include, with a very few exceptions, all the woolen and worsted mills in New England listed in our annual Official American Textile Directory for 1908.

If there is any error the percentage of idle machinery may be somewhat understated, as there is often a desire to make the best possible showing: furthermore, in mills reported "running in full" there is almost invariably some idle machinery. Our own opinion is that 5 per cent. could fairly be added to the percentage of idle machinery.

In estimating the percentages we have taken the amount of machinery in the mills reported wholly idle and added to it the percentage of idle machinery in the mills reported in partial operation or running on reduced time.

In the report of looms we have included both wide and narrow looms. Cotton warp worsted and dress goods have been included under worsted looms.

We believe that this is a true and accurate report of the condition of the wool and worsted industry in New England on or about December 20, 1908. It is confirmed by personal impressions of machinery and supply salesmen, yarn dealers and others who have been consulted, as well as by our own traveling staff.

Number of mills idle in New England ..	80
Number of mills in partial operation ...	132
Number of mills in full operation	295
Number of mills running overtime	29
	535

WOOL.

Number of sets wool cards in New England	3,594
Number of sets idle (in idle and partially idle mills)	1,414
Percentage idle cards	39.4%
Number of looms on wool goods,	23,702
Number of looms idle	8,489
Percentage of idle looms on wool goods	35.9%

WORSTED.

Number combs in New England,	1,277
Number idle	43
Percentage of idle combs	3.37%
Number of looms on worsted goods	33,918
Number of looms on worsted goods idle	3,338
Percentage of idle looms on worsted goods	9.8%

Simplification of British Cotton Standards.

A meeting of representatives of the British cotton industry was recently held at Manchester, Eng., for the purpose of considering plans for the simplification of the weights and measures now used in the trade.

The representative character of the gathering is shown by the following list of those present: T. R. Ellison, Liverpool Cotton Association; John R. Byrom, Manchester Cotton Association; W. Wallwork, E. Travis, T. Roberts and J. R. Smith of the Cotton Employers' Parliamentary Association, representing owners of 40,000,000 spindles and 400,000 looms; A. A. Haworth, M. P., and F. R. McConnel, representing the yarn and cloth agents; Hy L. Dilks and T. A. Holland, representing the home and foreign merchants; and Prof. Fox, of the Manchester School of Technology. The following resolutions were adopted:

WEIGHTS.

As it is the almost universal practice in the cotton trade, in dealings in raw cotton, yarn, and piece goods, to drop the use of the denominations tons, cwts., and qrs., and to use alone the one denomination of lbs.; and as this practice has proved beneficial as tending to economy by simplifying calculations; and as further benefits would accrue to the trade if the same practice were adopted in the purchase of stores and the charge for carriage of goods; it is hereby resolved that circulars be sent to shippers, merchants, agents, spinners, and manufacturers of cotton goods, asking for their cooperation in securing the universal adoption of this practice in all their dealings, and that a list be compiled of firms who are willing to adopt the practice.

VALUES.

Seeing that the reform, initiated in 1902 by the Liverpool Cotton Association, of instituting pence and decimals of pence in place of pence and vulgar fractions, for quotations and sales of American cotton has proved to be beneficial in practice; and that it would be to the further general advantage of the cotton trade if the practice were extended so as to apply throughout the trade; it is hereby resolved that circulars be sent to shippers, merchants, agents, spinners, and manufacturers of cotton goods, asking for their cooperation in securing the universal adoption of the practice in all their dealings, and that a list be compiled of firms who are willing to adopt the practice.

These resolutions are being carried into effect under the auspices of the British Weights and Measures Association, 12 Exchange St., Manchester, of which George Moores is secretary. This movement for simplifying British cotton trade standards was inaugurated by Mr. Moores and now promises to result in complete success It is only one of the many branches of the work carried on by the British Weights and Measures Association, whose purpose is to defend and, where practicable, improve the British system.

The Two-Loom System in Germany.

Textile manufacturers in the Gladbach district of Germany have for some time been trying to establish the two-loom system in their mills. This effort has encountered considerable opposition on the part of the operatives and recently the Central Labor Union, representing the textile workers throughout Germany, issued the following statement of its position in regard to the question:

1. As a general proposition the textile operatives do not oppose the double loom system. Whether the introduction of that system is possible or advantageous depends upon the conditions encountered, such as the style of goods, quality of the material, etc. A test of the system should, therefore, be made in each case.

2. In case the two-loom system is introduced, the following conditions should be agreed upon by the employers and operatives:

(a) Upon introducing the system no operative should be deprived of employment and none compelled to run two looms.

(b) Operatives under 21 years of age should not run two looms.

(c) A mill should not operate more than 20 per cent. of its looms by the two-loom system.

(d) Under the two-loom system a weaver will operate one principal loom and a secondary loom. The regular single loom price will be paid for work done on the principal loom, while at least 50 per cent. of the regular price will be paid for the cloth woven on the secondary loom. The weaver operating two looms must be guaranteed 20 per cent. more than the average earnings for the previous year.

(e) In case a weaver under the two-loom system is temporarily assigned to one loom only, the full price list must be paid for the work done during that time.

(f) In case of a depression in business no weavers are to be laid off until one loom is assigned to each weaver and the two-loom system abolished.

(g) In special cases further conditions in addition to the foregoing are to be agreed upon to suit the requirements.

(h) In mills where coarse work pays the weaver less than fine work an allowance is to be made for the former.

(i) The foregoing conditions are to be tested for a period of one year.

The German manufacturers will be tempted to suggest it would be much simpler to substitute for these conditions a clause providing that the two-loom system should not be tested as its failure is assured in advance.

Governor Hughes to Investigate Cotton and Other Exchanges.

An event that may prove to be of far reaching importance to the textile trade not only of the United States, but of the world, is the appointment by Gov. Hughes of New York of a committee to investigate the methods of speculation in securities and commodities with the object of determining how existing abuses can be eradicated. The committee consists of the following members:

Horace White, ex-Mayor of New York, Charles A. Schieren of Brooklyn, David Leventritt of New York City, Clark Williams, State Superintendent of Banks; John B. Clark, professor of political economy in Columbia University; Willard V. King of the Columbia Trust Co., Samuel N. Ordway, Edward D. Page of Faulkner, Page & Co., and Charles Sprague Smith of the People's Institute.

Gov. Hughes' letter asking these gentlemen to serve on the committee is as follows:

Gentlemen: At the last session of the Legislature I recommended that provision should be made for suitable inquiry into the facts relating to speculation in securities and commodities with the view of ascertaining the manner in which illegitimate transactions might be prevented and legitimate business safeguarded.

As I stated in accepting renomination, I had in mind, in making this recommendation, such an expert inquiry as was made into banking conditions, the result of which was the passage of highly beneficial measures.

In this commonwealth the vast commercial and financial transactions represent the activities of the entire country. It is of the utmost importance that legislation affecting business and exchange should be the result of deliberate study, and that we should neither threaten business stability by ill-considered measures, nor on the other hand invite agitation or impair confidence by ignoring abuses and by failing to provide suitable correction.

It is with this view that I request you to act as a committee for the purpose of collecting facts, receiving suggestions and making such recommendations as may seem to you fitting with regard to the following question:

What changes, if any, are advisable in the laws of the State bearing upon speculation in securities and commodities or relating to the protection of investors or with regard to the instrumentalities and organizations used in dealings in securities and commodities which are the subject of speculation.

It is not my intention to limit you in the consideration of any phase of the matters submitted, and I am confident that your carefully formed opinions, being those of men known for their interest in public questions and their acquaintance with affairs, and accredited to the community by high reputation, will be of the greatest value.

I must ask this public service without offer of compensation or indemnity for expense, as I have no authority to subject the State to any obligation in connection with your appointment. But I know that your generous action in serving the community will be highly appreciated and will afford another and most welcome illustration of the public spirit of our citizens.

I shall be glad to receive your report at as early a date as you may find practicable. I have the honor to remain very respectfully yours,

Charles E. Hughes.

Now is the time for the textile trade to act. Everyone who has facts in his possession bearing on the question of speculation on exchanges, or who has carefully worked out remedies for correcting the evils of such speculation should place the information before the Hughes committee in clear and concise form. It would doubtless be of great assistance to the investigators if those who have studied the subject would submit rules for governing exchange transactions, designed to make existing abuses impossible. While the Hughes investigation contemplates legislation affecting New York exchanges only it in reality has a most important bearing on speculation on cotton exchanges in all parts of the world. The leading cotton exchange is located in New York. Once get that institution on a sound basis and unsound methods of exchange dealing

will be impossible elsewhere. This is what makes it the duty of all, whether American or foreign, who know about produce and stock exchanges to cooperate with the Hughes committee in sifting out the facts. Communications to the committee may be addressed to Horace White, 18 West 69th St., New York.

Tapioca Flour.

Besides the schedules on strictly textile materials, manufacturers have an interest in the schedules on collateral lines of products which enter into textile manufacturing, such as dyestuffs, chemicals, starch, etc. We have not attempted to follow these different hearings completely, but were interested in the case of tapioca flour importers as presented by F. T. Walsh of Thomas Leyland & Co.

Tapioca flour from which dextrine, gums and certain kinds of tapioca starch are made, has been on the free list under the Dingley schedule. It comes into competition principally with corn starch for textile use when the price of the latter advances beyond normal, but it is from the potato starch manufacturers of Maine that the request for duty of 1 1/4 cents per pound on tapioca flour is made. And yet the tapioca people claim that the tapioca product is not especially competitive with potato starch.

Mr. Walsh brought out the point that the competition that potato starch manufacturers had to fear was the potato eater, as well as the corn starch manufacturer. When there is a good market for potatoes as a food product, the price of potato starch becomes very high, regardless of competition, and a duty on tapioca flour would have the effect of increasing the price of tapioca as a food product to the consumer and the cost of the manufactured product to the manufacturer, without apparently benefitting anyone.

A feature of this matter which is significant of the political influence which shapes all the tariff schedules is the fact that Senator Hale of Maine appeared before the Committee in behalf of the potato starch manufacturers of Maine, and advocated the duty on tapioca flour and will at the same time be an important factor in determining the final shape of the schedules when they go to the Senate.

Pure Water for Air Moistening.

At the last session of the Massachusetts legislature a law was enacted providing for the use of pure water in supplying air moistening apparatus in factories and workshops. The text of the act is as follows:

Section 1. The water used for humidifying purposes by any person, firm or corporation operating a factory or workshop, shall be of such degree of purity as not to give rise to any impure or foul odors, and shall be so used as not to be injurious to the health of persons employed in such factories or workshops.

Sec. 2. Any person, firm or corporation violating any provision of this act shall, upon conviction thereof, be punished by a fine of not less than ten nor more than one thousand dollars.

A Warning from the North

We have repeatedly called attention to the ruin of the Canadian wool manufacturing industry under the low Canadian tariff on wool goods. The lesson taught by the gradual extinction of that industry in Canada should be taken to heart by those who are about to revise the Dingley tariff. The latest incident in the death throes of the Canadian wool industry is the following circular letter sent by the Montreal Woolen Mill Co. to its customers:

Montreal, Dec. 7, 1908.

Dear Sir: It is with deep regret that we beg to announce to the trade our decision to liquidate our business of manufacturing woolens. We are compelled to this course of action by the realization of the fact that we cannot, under the existing conditions, hope to operate our mills profitably.

We consequently desire to inform you that we will only execute repeat orders for such goods as we may have the requisite raw materials for, up to 31st inst., when we discontinue advance orders and only deliver stock goods, and orders already booked.

We have at present a large stock of manufactured goods, which we will be pleased to show the trade at clearing prices.

Yours truly,
Montreal Woolen Mill Co.

As is our custom in such cases we requested detailed information from the Montreal company and received the following reply, which should be read with particular care by the law makers at Washington, that in their work of revision they may avoid passing the line of protection below which

no American textile industry can exist in competition with the cheap labor of foreign countries:

Montreal, Dec. 23, 1908.

Dear Sirs: We are in receipt of yours of the 21st, 1908, and note contents. We have done as requested in your slip and hope same will be satisfactory. We also enclose a circular which explains our position. We have been in business for the past 30 years and have always paid good interest on the capital invested until the last four years. Since the present liberal party came into power they have lowered the duty from 50 to 23 1/2 per cent. and have practically annihilated the woolen industry. During their stay in power they have through their free trade policy been the cause of 75 per cent. of the woolen mills closing and if they stay in power much longer there will be none left and the once biggest Canadian industry will be no more. We have during the last four years lost money, but have been hanging on expecting a change in the Government, which did not come, and we now have decided to liquidate our plant while we can pay 100 cents on the dollar. Do you know what the duty on second-hand woolen machinery is into the States? If same is low enough we may be induced to move our machinery and go over, providing we could secure a good location at a reasonable figure. If not too much trouble we would be much obliged if you know of a place that you think would suit our requirements to let us have a line from you. We prefer a plant with water power if at all possible to get. Thanking you in anticipation of an early reply and wishing you a Merry Christmas and a Prosperous and Happy New Year, we remain,

The Montreal Woolen Mill Co.

The Belgian and French Wool Exchanges.

The commission appointed several months ago by the French government to investigate the question of dealing in wool futures on the Roubaix exchange has made a preliminary report to the Minister of Commerce from which we make the following extract:

The legal status of the exchange may be defined as follows:

The officers of the exchange are subject to the municipal authority as far as their public acts are concerned. The financial administration of the exchange is confided to the Chambers of Commerce which are invested, along with the prefect, with certain powers of regulation. These Chambers of Commerce have the right to propose to the prefect the enactment of the necessary measures for regulating exchange operations, for determining the class of merchandise which shall be marketed on the exchanges, and for fixing the days and hours during which business shall be transacted. Without committing itself to an endorsement of the charges against the exchange, the commission desires to examine the question more carefully and for that reason requests further time for consideration.

Belgium is also engaged in investigating the question of dealing in wool futures. The commission of inquiry appointed by the Verviers Chamber of Commerce has recently made a report after an exhaustive investigation. The conclusion reached is that the wool exchange instead of being abolished should be subjected to strict regulation in order to eliminate the professional gamblers and speculators. In accordance with this idea the Belgian commission makes the following recommendations:

1. Establish a minimum of three distinct grades of tops in order to afford manufacturers a choice of the grade best suited for their respective needs. It is evident that the existing grade does not answer the requirements of any considerable number of manufacturers.
2. Reduce the limits within which deliveries can be made. It will be readily understood that with the present wide latitude of choice a manufacturer cannot count upon obtaining the quality that is required for his class of goods.
3. To limit the future period to six months, which will be sufficient for those who use the market for covering.
4. Oblige the seller to accept the quantity specified and at the time named in the contract, the buyer being likewise forced to accept delivery on his contract. The obligation not to be transferable, there being but one sale and one purchase for each lot of material.
5. Increase the amount to be deposited for guaranteeing the transaction.

British Foreign Trade.

As a result of the recent strike in Lancashire and the general depression in trade throughout the world, British foreign trade shows a marked decrease for November, 1908, as compared with the corresponding month of last year. The total goods of all kinds imported in November were valued at $242,554,304, a decrease of $35,174,979 as compared with November, 1907. The November exports of all kinds were valued at $141,656,437, a decrease of $32,633,738.46 as compared with last year. The cotton trade showed a heavy loss owing to the strike or lockout in the Lancashire mills, as well as to the general depression in business. The exports of cotton yarn dropped from 22,506,700 lbs. in November, 1907, to 11,486,900 lbs. in November, 1908. In November, 1908, 378,952,400 yards of cotton piece goods were exported as compared with 516,375,200 yards in November, 1907.

Shoddy.

England leads the world in the manufacture of shoddy and shoddy goods, and this great English industry is concentrated around Batley and Dewsbury. An American visitor to that district, his boyhood home, recently told us on his return to this country that the manufacture of shoddy was carried on so extensively and intensively around Batley that the birds flew backwards there to keep the shoddy dust out of their eyes. One thing is certain, the trade is large and it now is shown to be a very healthful occupation. Batley and Dewsbury must be classed as health resorts where even the Canadians can rest and recuperate. There is one portion of our correspondent's report, however, to which we must take exception. It is the conclusion reached by Dewsbury that the grade of the American rags shipped to England is a standard by which to judge of American rags in general—and inferentially—of American clothing. We do not question the statement that Dewsbury has received poor rags from the United States, but that fact is entirely consistent with the belief, which we hold to be correct, that the clothing worn by Americans, and, consequently, the rags from that clothing when cast off, contains a larger proportion of new wool than can be found in any other country. Excluding from consideration the inhabitants of the tropics where comparatively little wool is used, the people of the United States, forming only 7 7/10 per cent. of the world's population, consume 21 per cent. of the world's wool clip. Reducing it to a per capita basis and we find that the annual consumption of wool, scoured weight, in the United States is 54 1/2 ounces; outside of the United States and the tropics, 17.2 ounces.

The average annual per capita consumption of wool for the world, exclusive of the tropics, is 20.1 ounces. This quantity, if made into cloth without any admixture of shoddy or other material, would produce 14 ounces of light weight cloth, say a piece about 42 inches square. That would be little more than enough wool material for a vest and a pair of stockings. Without a large quantity of wool substitutes besides this new wool life would not be possible for the greater part of population now living in the temperate and cold climates. This fact should be taken to heart by those who are prone to denounce shoddy as a swindle. The shoddy mills of Batley and Dewsbury are turning out a product as necessary to the existence of mankind as is that turned out from the wheat fields of the Canadian North West.

Industrial Progress in Germany.

A committee of the German Reichstag has recently recommended certain radical changes in the law regulating the hours of labor and the employment of women and children in factories and workshops, which indicate a surprising rapidity of industrial progress in the German empire. The changes made may not be adopted, but the fact that they have been brought forward is of deep and gratifying significance. The committee favors the adoption of a nine-hour day and raising the age limit for children to 14 years. The proposals have aroused a storm of opposition among German employers of labor, the textile mill owners being especially active in opposition to the committee's recommendations. The employers claim that a reduction of the working day to nine hours will injure not only the employers but the operatives as well, as it is but a few years since the prevailing working time was from 11 to 12 hours a day, and the trade has not yet become completely adjusted to the ten-hour day. It is claimed that a nine-hour day and raising the age limit will place German manufacturers at a serious disadvantage in competition with English, and that the industry will be deprived of a supply of young operatives who have become skilled in the various branches of the business. A vigorous protest against the proposed changes in the law has been sent to the Reichstag by the employers' associations, and accompanied by the urgent request that in case any modifications of the statute are made, they shall not go into effect before 1912.

The Revision of the Tariff.

Developments Since the Committee Hearings, as seen by the Editor of the Textile World Record.

Since our December report the Ways and Means Committee have closed the regular public hearings on the revision of the tariff and the Republican members are now engaged in framing a bill to be presented to Congress next March. Although there will be no further public hearings before this Committee, unless they are found necessary in order to clear up special questions, many written statements are being presented. These, as a matter of fact, are of more value than the oral statements of witnesses, although the latter statements have showed a marked improvement since they were required to be made under oath. There has been more deliberation and less loose talk than when the testimony was in the nature of ordinary conversation.

BAGGING FOR COTTON BALES.

Strongly worded appeals for the removal of the duty on jute bagging used for wrapping cotton bales come from the South. Here is one from the New Orleans Cotton Exchange:

New Orleans, La., Nov. 9, 1908.

Whereas the Ways and Means Committee of the House of Representatives will meet in the near future to hear argument in relation to tariff amendments; and

Whereas the present tariff on jute bagging used for baling cotton and on steel cotton ties amounts to 9 cents or more per bale; and

Whereas this tax is a direct burden on the cotton-raising industry of the South for the benefit of a few manufacturers who are thus enabled to thrive at the expense of the most important class of agriculturists in this country: Therefore be it

Resolved, That the New Orleans Cotton Exchange earnestly urges that all bagging and ties used in the baling of cotton be put in the free list.

Resolved, That our Senators and Representatives in Congress from Louisiana and those from the other cotton States be earnestly urged to present this matter before the Committee on Ways and Means or any other congressional committee before which it may be considered, in such light as will prove the justice of our request and the urgency for all proper relief in the premises.

H. G. Hester, Secretary.

The New Orleans Exchange also sent a representative in the person of C. Lee McMillan to Washington, following being some extracts from his testimony:

Mr. Boutell—Would free bagging and free cotton ties enable the purchasers of raw cotton to get it any cheaper?

Mr. McMillan—To the extent of the duty, sir.

Mr. Boutell—And would this cheapening of cotton pass on to the final consumer?

Mr. McMillan—I think so.

Mr. Boutell—So far as that which is made in this country is concerned?

Mr. McMillan—Yes, sir.

Mr. Gaines—How much did you say the cost was increased in a bale of cotton by the tariff on jute bags and ties?

Mr. McMillan—Nine and one-quarter cents per bale.

Mr. Gaines—What is the average price of a bale of cotton?

Mr. McMillan—Fifty dollars.

Mr. Gaines—That would be 9 1/4 cents in $50—

Mr. McMillan—That is the average price. The present price of cotton is about $40.

Mr. Griggs—Mr. McMillan, there are only two concerns who really manufacture bagging for cotton bales.

Mr. Millan—Of any moment.

Mr. Griggs—And they are the Ludlow Manufacturing Association and the American Manufacturing Company.

Mr. McMillan—Yes; they have it pretty much their own way.

Mr. Underwood—Is the duty on jute bagging prohibitive?

Mr. McMillan—Not entirely. Some years, when the American Manufacturing Co. puts the price at a pretty high figure to the farmer, it permitted a small amount of bagging to be imported. During 1907 the price was put up very high to the farmer, costing about 15 cents per yard, as Mr. Griggs perhaps knows, and then the importations increased, amounting to perhaps as much as 15,000,000 yards. You have it before you. This year they opened the market at a very much lower price, and therefore the purchases of foreign bagging have been very much smaller.

The Chairman—I find that there was imported 20,000,000 yards.

Mr. McMillan—Yes; a bag weighs about 2 pounds per yard, and that would be 10,000,000 yards imported.

Mr. Underwood—Then there was 20,000,000 yards imported in that one year. What is the total consumption in this country for baling cotton?

Mr. McMillan—It requires about 80,000,000 yards to cover this crop.

Mr. Underwood—Eighty per cent. made in this country and 20 per cent. imported. And that 80 per cent. that was manufactured in America is manufactured by two firms?

Mr. McMillan—With the exception of a very small mill at Peru, Ind., which makes a limited quantity.

The other side of the story was told by

Thomas F. Magner who appeared before the committee on Nov. 30, 1908, as a representative of all the American manufacturers of cotton bagging, the Peru Bagging Mfg. Co. of Indiana, the Ludlow Mfg. Associates of Massachusetts, and the American Mfg. Co., the last named company having mills at St. Louis, Galveston, Charleston and Brooklyn. Mr. Magner said:

We agree to a reduction of the duty on manila rope and cordage. We also are engaged largely in the manufacture of jute twine, and we agree to take a reduction on that. We have asked for an increase in the duty on bagging. We ask for it because we compete with the lowest-priced labor in the world, namely, the Calcutta Indian labor. We ask for it because all our supplies and our machinery are taxed under the tariff now 45 per cent., and we call attention to the fact that after the adoption of the Wilson bill, when these articles were placed on the free list, there were engaged in the manufacture of these articles at that time nine separate corporations, and they have dwindled down to the present three; and we say that unless we receive a fair amount of protection these three will go out, as they are rapidly going out, of the manufacture of cotton bagging. That is a calamity which will be visited alike upon our manufacturers and upon the farmer. It will ultimately place us at the mercy of the East Indian Calcutta combination, which we think is an evil.

Mr. Magner also presented a written statement signed by the three companies he represented and from which this extract is taken:

The duty on cotton bagging is six-tenths of a cent per square yard. On the basis of the importations of 1907 and 1908 this represents an ad valorem duty of 9.78 per cent. and 9.11 per cent., respectively. This we submit is not sufficient protection for an industry which is compelled to pay 45 per cent. duty on all machinery and machine supplies; or other supplies we use, the industries making them enjoy protection ranging from 30 to 45 per cent. ad valorem; but our strongest appeal is on the ground of competition with the Calcutta (India) mills, where they sometimes run twenty-two hours a day, and employ labor at rates less than one-twelfth of that paid by American mills.

American manufacturers are now able to produce bagging sufficient to cover any possible cotton crop. Notwithstanding their efforts to compete, the importations from India are increasing every year, and have displaced a corresponding amount of American machinery which is now lying idle. If no check is given to importations from Calcutta, the time will soon come when the cotton growers will have to rely entirely on Calcutta mills, and thus be at the mercy of the existing combination there.

We submit that it is wiser to make such slight addition to the present rate of duty as will enable the American manufacturers to compete with Calcutta, rather than to wipe out all of this capital investment, throw so many hands out of employment, and turn over this large home market to the foreigner.

It is not our purpose, at this time, to set forth in detail our reasons for asking for adequate protection, in order to avoid being forced to abandon the manufacture. Our expensive mill equipment and acquisition of trained labor prompts us to hope that we may be able to furnish the cotton growers of the United States the larger part of their requirements, thus relieving them of dependence upon the production of the cooly hordes of India, who subsist on a wage rate of from 25 cents to 75 cents per week.

At first sight the Southern request for free jute bagging seems reasonable in view of the fact that there is free trade in raw cotton. But this is a superficial and wholly fallacious view. The growing of raw cotton, with the possible exception of sea island cotton, is one of the occupations, by no means few in this country, for which natural conditions make tariff protection unnecessary. That, however, does not entitle those engaged in it to demand free trade in everything they purchase. The protective policy is based on no such narrow proposition. Its justifiable object is to maintain the American standard of wages and living in all occupations by giving to those who are exposed to the competition of cheap foreign labor, protection by a tariff that partially takes the place of the protection that nature gives to many occupations in the United States. Accordingly the cotton planter is required to pay more for American made bagging than for that made in India. The principle involved here is the same as that which is now giving force to the appeal for protection to the growers of Sea Island cotton against the competition of cotton grown by the cheap labor of Egypt.

There is another phase of this jute bagging question that will repay examination. The jute bagging from which the New Orleans Cotton Exchange wants the duty removed, and on which the jute bagging manufacturers want it increased, is used for wrapping the American cotton bale, which has been truthfully described as "a dirty, damaged, disreputable, water-soaked, wasteful, slovenly, clumsy, highly inflammable turtle-backed deformity."

During the past few years it has become widely known that the chief cause of the bad

condition of the American bale is the "cif and six" contract under which the European buyer demands a tare allowance of 6 per cent., or 30 pounds per bale. This is much in excess of the ordinary tare and as a result the exporter of cotton must choose between giving away good cotton to make up the difference, or stuffing the bale with the cheapest bagging he can get. Like a sensible man he chooses the latter course and uses old cast off bagging, of which large quantities are shipped back from Europe for that purpose, in addition to the new bagging required for wrapping the bale. One witness, E. W. Mente, of New Orleans, appeared before the Committee to ask for a definite classification on this old bagging, and gave the following account of the trade:

Mr. Mente—I have something to say on jute bagging if the committee is through with its questions.

The Chairman—You may go ahead.

Mr. Mente—On jute bagging I wish to say that we are importers of second-hand bags which come in pieces. This bagging is principally bagging that falls off the American cotton bale, and from jute bagging which goes from various countries to Europe, and for which Europe does not seem to have much use. I wish to ask this committee to kindly put this special material under a specific paragraph. Under the present Dingley tariff it is classified as "waste," and ever since the tariff has been in existence there has been a good deal of trouble with the Treasury Department to arrive at a proper classification of the material. At last it came before the courts, and the United States district court in Louisiana decided it should come under the classification of "waste," and jute waste pays 10 per cent. ad valorem. What we would like is a specific paragraph reading, "Old bagging and cloth of every description made of jute, 10 per cent. ad valorem." In other words, we do not ask to have the duty changed, only we wish it to be properly classified under a specific paragraph in order to avoid trouble. This bagging is used the same as cotton bagging, and it is principally used by the cotton exporters to repack or recover bales which have been damaged.

Mr. Griggs—In other words, more is used for patching than any other purpose. Are you the only importer of that in this country?

Mr. Mente—No, sir; I dare say there are a dozen of them, or more.

Mr. Griggs—You do not sell any in south Georgia, do you?

Mr. Mente—I think we do.

Mr. Griggs—What do you want a tariff on that at all for?

Mr. Mente—I do not care a cent whether there is a tariff or not.

Mr. Griggs—Then, why do you want another change?

Mr. Mente—Because there is a tariff on it now, and I want it to remain so.

The European demands the allowance of 30 pounds per bale. The American brings this waste jute bagging back from Europe and stuffs it in the bales to make up the 30 pounds. And thus it may travel back and forth between America and Europe for years, making up the 6 per cent. tare one way, and serving as ballast with incidental revenue to the U. S. Government, the other way. And under these conditions Mr. Mente of New Orleans comes along and asks Congress to classify this rubbish, presumably that no further impediment may be raised to this wasteful traffic. We are not interested particularly in this duty on jute rags, but are calling attention to it in the hope that it may induce the different branches of the cotton trade to abolish the traffic by carrying out the plan formulated at the Atlanta Cotton Conference for reforming the cotton contract and, incidentally, the American cotton bale.

COTTON AND COTTON GOODS.

A number of very interesting statements on cotton and cotton goods have been submitted to the Committee. Harvie Jordan, president of the Sea Island Cotton Association and of the National Cotton Association, appealed for a duty of not less than 40 per cent. on all foreign cotton that can be used as a substitute for similar grades grown in this country. We take the following from his statement:

In 1907 the importations of Egyptian long-staple cotton was 90,000 bales, which was 10,000 bales in excess of the total production of Sea Island cotton in the states of Georgia and Florida for the same period. These importations are constantly on the increase and seriously affect the price of not only the Sea Island productions of Georgia, Florida, and South Carolina, but between 300,000 and 500,000 bales of long-staple cottons annually produced in the Mississippi Delta and territories adjacent thereto.

It is altogether unfair to give high protection to American manufacturers against the shipment of manufactured cotton goods from abroad into this country and at the same time allow the importations of raw cotton into this country duty free. American mills under this process are protected against competition from foreign mills, while they are given the power to regulate the price of Sea Island and long-staple cotton raised in this country by the importation of Egyptian varieties of raw cotton duty free. Under this system the highly civilized and progressive American farmer is made to compete with the practically enslaved peasantry of Egypt. We do not believe

that these conditions represent the true policy of the American Government. Either the protective duties favoring American manufactured cotton goods should be wiped out entirely and the American mill owners placed on a parity of competition with American cotton growers or a duty of at least 40 per cent. of the market value of all grades of Egyptian and other foreign-grown cotton should be levied against the importations of such cottons into this country. There are many mills in America today which are using only Egyptian cotton, which they receive at their mills duty free, while the finished product of their mills is protected by a duty of from 40 to 60 per cent. against the competition of similar products manufactured abroad.

No advocate of protection to American industry can consistently disagree with Mr. Jordan's argument. The labor conditions under which Egyptian cotton is raised are so bad that an agitation for reform has begun in England, and the British Government is now engaged in an inquiry into the facts. Why should the American cotton grower be exposed to the competition of what Mr. Jordan calls "the practically enslaved peasantry of Egypt?" We are unable to find any better reason for protecting the American textile operative than for protecting the Southern cotton grower. Protection for all or for none is an irrefutable proposition. The demand made by the growers of Sea Island cotton should lead Congress to make a thorough investigation of the conditions under which cotton imported into the United States is produced and the effect of such importations on the American growers.

The Samson Cordage Works, Boston, Mass., sent to the Committee this business-like letter which is noteworthy because of its frank statement that the duty on cotton cordage could be reduced without injury to the American industry, and because it calls attention to our trade relations with Canada, and to the fact that duties higher than are needed for protection are objectionable because of the popular prejudice they create against the protective policy, although such duties may not mean a corresponding increase in the price to the domestic consumer:

Dear Sir: In accordance with the suggestion from the American Protective Tariff League, we submit to you the following facts with regard to the cotton cordage tariff. The Dingley tariff, Schedule 1, paragraph 320, makes the duty 45 per cent. The duty on cotton cordage into Canada is 25 per cent. Either rate is prohibitive. We would be equally willing to have the United States duty reduced to 25 per cent., to be like the Canadian duty, or to have no duty at all either way. There is today only one mill in Canada making exactly the same class of goods that we do and they supply the whole of the Canadian trade, but we need no protection against them if we have equal rights in their market.

A much more moderate tariff than the present one would protect us against cheap English or German competition.

Yours very truly,
Samson Cordage Works,
Herbert G. Pratt,
Treasurer.

A request that the duty on cotton thread be left undisturbed was presented in behalf of twenty-five of the leading cotton thread manufacturers of the United States.

It gave a comparative table of thread mill wages in this country, England and Belgium and made it clear that the duty was needed by those thread manufacturers only whose products are not sold under trade-marks. Such well-known brands as "O. N. T." or "Coats" place the manufacturer beyond the need of protection, because the ultimate consumer insists on having thread bearing the familiar mark. Following is a portion of the statement:

Competition among American manufacturers is very keen, and the margins of profit on many lines are reduced accordingly; in fact, in some cases goods are sold at net cost. In the last few years the number of thread manufacturers in the United States has increased largely, and any reduction of duty would be a particular hardship to these new makers, whose business is not yet protected by reputation or trade-marks to the same extent as that of the older manufacturers. Under the circumstances any change in the tariff which will enable foreign competition to sell below the prices now ruling will be disastrous to the American cotton-thread industry, and will mean a large reduction of wages and the closing of many mills.

Comparison of Cotton-thread Mill Wages.

	United States.	England.	Belgium.
Card room:			
Overseer	$32.50	$9.50	$11.25
Grind and set	10.00	5.10	2.80
Tend slubbers	8.25	4.32	1.62
Mule spinning:			
Overseer	27.50	10.68	4.20
Spinner	21.00	9.00	4.92
Doffer	..	2.16	1.05
Finishing.			
Dyers	10.40	5.58	6.18
Bleachers	10.40	4.74	2.82

The tariff on cotton yarn promises to be a bone of contention between the spinners, weavers and knitters. On Dec. 1st, C. Minot Weld, of Boston, appeared before the Committee to ask for an increase in the rates on fine yarns, following being extracts from his statement and cross examination:

We consider the present schedule on single-carded yarns satisfactory, because a comparatively small labor cost has been added to the raw material. Since the present tariff bill was passed in 1897 the conditions of our business in regard to yarns advanced beyond the condition of single-carded yarns on cops has greatly changed, and the protection which was considered fair at that time is no longer adequate.

The large increase in the importation of these highly finished yarns shows the growing difficulty our manufacturers are experiencing in competing with foreign yarns. In view of the facts shown by the above schedule, we believe that we are justified in asking for the following slightly increased tariff on the highly finished yarns.

Cotton thread and carded yarn:

Singles (not dyed or bleached) up to No. 15, 3 cents a lb.

No. 15 to No. 30, 1/5 cent per number per lb.

No. 30 and above, 1/4 cent per number per lb.

Combed single and all twisted yarns:

Up to and including No. 20, 6 cents a lb.

To No. 50 inclusive, 3/10 cent per number per lb.

Over No. 50, 4/10 cent per number per lb.

If colored, bleached or mercerized, 1/10 cent per number per pound additional.

Mr. Underwood—On the low grades of yarns the schedule today is prohibitive?

Mr. Weld—Practically.

Mr. Underwood—Do you think that the industry is entitled to a prohibitive tariff?

Mr. Weld—Well, I do not think so. There are many grades which are not produced in this country at all, in which we do not compete with the imported yarns.

Mr. Underwood—I understand that; but that only demonstrates the fact that the duty on the lower grades of yarn is more prohibitive; they are producing no revenue to the Government whatever. Under those circumstances, with the necessity for increasing the revenue, do you not think it is necessary to reduce this schedule rather than to raise it?

Mr. Weld—No.

Mr. Underwood—And do you not think that your industry (which is no longer in its infancy, but is of many years' standing) should have a duty under which some of the revenues of the Government can be raised from it?

Mr. Weld—I think that is a question which will be settled by the Ways and Means Committee.

Mr. Cockran—As I understand you, you are not speaking here from any point of view but just what you want to get for your own profit.

Mr. Weld—That is all.

Mr. Cockran—The public interests are not at all a matter with which you concern yourself. You leave that to us.

Mr. Weld—Yes, sir.

Mr. Cockran—That is it, of course.

This testimony stirred up the knit goods manufacturers at Reading, Pa., who on December 15th presented their side of the question in a letter signed by Charles E. Leippe, Ferdinand Thun, G. Oberlaender and James Rick, from which these extracts are taken:

We are users of fine yarns and are somewhat familiar with the cost of spinning them, and we are free to assert that the present rates of duty are more than adequate; in fact they are prohibitive. If it is the intention of Congress to protect American manufacturers only to the extent of the difference in cost between American goods and foreign goods, the duty on fine cotton yarn should be very materially reduced. We claim that the duties that are now being collected on cotton yarns per pound are fully equal to the total wages paid per pound by American spinners. We challenge Mr. Weld and his associates to disprove the general correctness of this broad statement.

Our German competitors absolutely control the American market in fine-gauge hosiery and fabric gloves, mainly because of the excessive duty now being levied on fine, highly finished yarns, which on 2/100s amounts to 30 cents per pound, and on 2/200s to 60 cents a pound.

It will readily be seen that with this tremendous advantage in the cost of his raw material, the German manufacturer can very well afford to pay the duty on cotton hosiery and gloves and still undersell his American competitor. Hosiery manufacturers have attempted again and again to capture the market for fine-gauge, light-weight hosiery in the United States, and have been beaten to a standstill each time, and some of them have lost big money in the attempt.

Now, if the rates asked for by Mr. Weld are incorporated in the new bill, it will be absolutely impossible to import fine yarns from England for manufacturing purposes. The American spinners will have an absolute monopoly of the cotton yarn business in this country. At present the business is practically controlled by a few large corporations with immense capital. The three concerns who practically rule this business today are the American Thread Company, the New England Cotton Yarn Company, headed by Mr. Weld, and the group of mills owned or controlled by Mr. William Whitman, of Boston. With prohibitive rates like those asked for by Mr. Weld and the competition of English spinners entirely eliminated, nothing could prevent the gentlemen controlling the above three concerns to get together overnight, and between the soup and the fish fix prices for their products to suit themselves, and to exploit the American market to any extent.

At least 95 per cent. of all fine yarns above No. 120 is now being imported from England, but the excessive duty prevents them from being used largely by American manufacturers. Although the American spinners have had for eleven years an absolute monopoly of the American market, they have not even attempted to spin the fine numbers, simply because they have been making exorbitant profits on the coarser numbers, which it is easier to produce. We are satisfied that the removal of the duty on fine yarns would be of great benefit to the knit-goods industry and would furnish remunerative employment to thousands of workers in the hosiery, underwear and glove factories of the United States and would enable the manufacturers to compete for the trade in fine gauge, high-priced cotton goods, which is now controlled by European mills.

TYPEWRITER RIBBON.

The Morton Mills, Paterson, N. J., asked for an increase in the differential on woven edge tapes for typewriter ribbons, which is in part as follows:

The present duty on cotton yarns used in the manufacture of woven edge tapes for typewriter ribbons is, at the present time, three-tenths of a cent per pound number, or approximately 40 per cent. of the invoice valuation, while the duty on the manufactured article is 45 per cent. ad valorem. Thus you will see that the duty on the raw material is practically the same as that on the manufactured article, which must be made of imported yarns. This makes the production of this fabric in this country very difficult at the American standard of labor cost. We would therefore request that a duty of 35 per cent. over and above the present specific duty on yarn be levied on imported typewriter ribbons.

VELVETEENS AND CORDUROYS.

Wellington, Sears & Co., Boston, expressed the hope that there would be no reduction of the duty of these goods, giving this following interesting account of the industry:

It is only within a few years that the manufacture of velveteens has been started in this country, they previously having been made principally in England and France. These goods, as you know, are first woven on specially equipped looms; the races are then cut by hand, an operative being able to cut 150 yards race cut in one week, or 300 yards slip cut in one week, this work being done by female operatives from 14 to 20 years of age. The cutting of a lump (150 yards) of slip-cut velveteens can be done for 12s ($3) in England, whereas the same work in this country costs more than double this price. The cutting of a lump of race-cut velveteens could be done for $5 in England, and in this country it also costs double this price. After the goods are cut they pass through various stages of brushing, singeing and dyeing before they are ready for market, the great item of cost in these processes also being labor, and although the operatives are paid well in this country we are competing in cutting velveteens with almost the cheapest labor in Europe.

The above facts will also apply to corduroys, except that on account of the goods being coarser and heavier it is possible to cut them by machinery, which is being done in this country. But here again, labor is the principal item, the goods passing through from 20 to 25 processes in the finishing alone, and the labor in the finishing plants in the country is paid just about double the wages paid in the finishing plants in England.

The Cocheco Mfg. Co., Dover, N. H., took the same stand on the duty on velveteens, in a letter from which this is taken:

This is an industry only recently started in this country, and has not as yet been sufficiently developed to enable it to compete with foreign manufacturers if the duties on this class of goods should be reduced. In the cost of manufacturing in this country I think labor probably represents approximately 75 per cent. of the total cost, and so far it has not been fully demonstrated that the present duty enables us to more than meet foreign competition.

The New York Mills also asked that the duty on corduroys remain unchanged, giving a very instructive comparative statement showing the proportions in which cotton, labor and other expenses enter into the cost of hosiery yarn, gray cloth and corduroy:

We are interested in protection on certain lines as set out below, but we believe that a reasonable reduction of tariffs on the ordinary yarns and cloths, such as we make, would not materially injure the business.

Any reduction of the tariff on corduroys would be disastrous on account of the great amount of labor involved in the manufacture of this cloth as compared with other cotton products.

We make three products—hosiery yarn, ordinary cotton cloth, and corduroy cloth. The cost of ordinary hosiery yarn is made up of:

	Per cent.
Cotton	67
Labor	15
All other expenses	18

This is for high-grade hosiery yarns. The gray cloth that we manufacture is made up of:

	Per cent.
Cotton	60
Labor	20
Other expenses	20

Corduroy is made up of:

	Per cent.
Cotton	25
Labor	40
Other expenses	35

The rate of wages paid in Europe is about one-half less than in the United States and the skill of the foreign operator on this class of goods is much greater than here, on account of the manufacture of corduroy containing so much hand work.

The corduroy and velvet industry in this country is practically in its infancy, not being over 20 years old. It requires great skill on the part of the operators, and we have not as yet commenced to reach the point of production that our foreign competitors have.

WOOL AND WOOLENS.

The exciting hearings on the wool and woolens schedule last month was followed by a shower of statements on this branch of the textile industry. The wool growers have been especially industrious in protesting against a reduction of the wool duties and preparing statements of the cost of growing wool in this country. Here, for example, are the comparative statements of cost by P. G.

Johnston, of Blackfoot, Idaho, who represented the Idaho wool growers:

The cost of wool production has during the last ten years increased very much. In order to obtain a relative statement bearing on the cost it will be necessary for me to make a comparative statement of the expenses incurred ten years ago and the expenses at present, and apply them to a given number of sheep, which constitute a flock, namely, 1,700 head, consisting of 1,200 ewes and their lambs and 500 yearlings.

In 1897 the expenses incurred were:

1 herder, at $35 a month	$420
1 camp tender, at $25 a month	300
Board for the two of them, $25 per month	300
Shearing, at 7 cents each	119
Feeding hay, at 20 cents each	340
Total	$1,479

In 1907 the expenses incurred were:

1 herder, $50 per month	$600
1 camp tender, at $40 per month	480
Board for the two men, $50 per month	600
Forest reserve grazing fee, 7 cents each	119
Shearing, at 10 cents each	170
Feeding hay, at 50 cents each	875
Total	$2,844

The cross examination of Mr. Johnston by Congressman Champ Clark brought out some interesting details regarding the breed and habits of American sheep, as this extract shows:

Mr. Clark—You raise a breed of sheep in Nevada and on the islands off the coast of California that never drink a drop of water from the time they come into the world until they get to be old sheep.

Mr. Johnston—I would not be able to verify that, although it might be true.

Mr. Clark—It is true, provided the people who told it to me told the truth. Of course, I do not know. I know that when they told me that these sheep on the Catalina Islands did not get a drop of water to drink, it surprised me very much. I was told that that was the case in Nevada; and when I came across a man in the Catalina Islands who had a herd of sheep—over 100—I cross-examined him after he told me this tale. I asked him what the quality of the meat was and he said that it was drier than the meat of other sheep, and I consider that it must be considerably drier.

The Catalina sheep that never drink water had evidently made a deep impression on Mr. Clark's mind, for he recurred to them several times. Thus with Archibald Moore, of Mannington, W. Va.:

Mr. Clark—Did you ever see any sheep raised on the Catalina Islands?

Mr. Moore—I have not.

Mr. Clark—They are about one-sixth or one-seventh or one-eighth as big as the sheep we have.

Mr. Moore—You say one-sixth as large?

Mr. Clark—Yes. That is in the Catalina Islands. That is the ideal sheep-raising country, so they told me when I was in California. Of course I have suspicions about that since I heard the Californians here.

Mr. Moore—It depends on what they may make up an ideal sheep country. The Argentine Republic is an ideal sheep country in point of production.

Mr. Clark—Would you not have enough patriotism, enough interest in increasing the revenue of the country, to stand a little shave off this duty on wool from the Dingley bill?

Mr. Moore—No; I do not think we can stand the least bit. You will agree with me that the law of self-preservation is a good law?

Mr. Clark—Yes, and there is another law that is a good law, and that is to supply enough money to run the Government.

Mr. Moore—But it would be a faulty policy to save the Government by smiting one of our principal industries.

It seemed impossible for Mr. Clark to leave the sheep that never drank water. Here is his colloquy with Mr. Erickson, of Salt Lake City:

Mr. Clark—Wait a minute. Why can there not be something done to save such immense waste as you have in the life of sheep and cattle, both?

Mr. Erickson—Let me illustrate. The day before I left home in Salt Lake City, or two days before I left, it started to snow, and we had a snowstorm for forty-eight hours. The snow fell deeper than it had fallen for a number of years.

Mr. Clark—How deep was it?

Mr. Erickson—It was three feet deep at Fort Douglas on the bench and up on the mountains the sheep were beginning to leave the fall ranges for the deserts where they have to depend upon the snow, but they are not used to getting these things so sudden. Many sheep were in the mountains, and what was necessary for them to do was to cut down cedar trees and tie them behind wagons and make trails for the sheep to get down on the desert.

Mr. Clark—If you had taken the sheep a week or two sooner and driven them down on the desert they would not have got caught in the snowstorm?

Mr. Erickson—They could not get any water before the snow came. They could not live out there like they do in the Catalina Islands.

Mr. Clark—They live in Nevada.

Mr. Erickson—But they live upon snow.

Mr. Clark—A man was telling me that they raise sheep in Nevada that never drink any water, they won't touch a drop of water, and if you drive a flock of those sheep through a stream they will jump over the stream instead of stopping to drink. That man was a county surveyor.

Mr. Erickson—I would not like to doubt his word, but—

Mr. Boutell—He was something else besides being a county surveyor, was he not?

Another estimate of the cost of growing wool was presented by R. J. McCleery, of West Alexander, Pa.:

I want to protest emphatically against any reduction in the tariff on wool at the present session of Congress. Wool is selling at 30 cents per pound, and that is as low as we can afford to produce it in this locality, with land and labor at present price.

I give below cost of producing 100 fleeces of wool:

1 bushel grain per day for five months, worth on farm 70 cents per bushel	$105
10 tons hay for winter	80
7 months' pasture	70
For attention	50
Total	$305
100 fleeces, 7 pounds per fleece, 30 cents per pound	$210
For growth of sheep	100
Total income	$310
Profit	$5

I have made the above estimate fairly, after long experience and without any allowance for interest on investment in sheep or loss by disease or dogs, which is no inconsiderable item in the sheep business.

This reference to the loss of sheep by dogs brings up the question as to whether a strictly enforced dog law would not be equivalent to much of the duty on wool in its benefit to the grower. The fact that the British islands produce wool at the rate of 1,158 pounds per square mile, while the rate of production in the United States is only 99 pounds per square mile, leads to the belief that the domestic wool grower needs protection against something at home fully as much as against competition abroad.

Seven gentlemen representing the Oregon wool growers presented this estimate of cost:

We sincerely believe that if there was any need of the Dingley tariff on wool at the time of its passage it is doubly necessary to maintain the same now on all wools that would be brought into competition with American product.

In view of these facts the following figures have been compiled and subscribed to for the consideration of your honorable body:

1897.

2,000 head of sheep, worth $4 per head	$6,000
500 acres of land, $2.50 per acre	1,250
Herders, wages per year	360
Camp tenders, five months	100
Lambing expenses	200
Shearing expenses	120
Provisions for one year	300
Feeding in winter, one month	300
Taxes	100
Miscellaneous expenses	200
Total	$8,930

1908.

2,000 sheep, worth $4 per head	$8,000
2,000 acres of land, at $5 per acre	10,000
Herder's wages	480
Camp tenders, five months	250
Lambing expenses	400
Shearing, at 8 cents per head	160
Provisions for year	600
Feeding in winter, 3 months	1,000
Summer range	200
Taxes	200
Miscellaneous expenses	500
Total	$21,790

It will be shown by the foregoing figures that the enormous difference in the expense of handling sheep now and the time referred to is the fact that all winter range is now owned and the price thereof has become doubled, government range in this district being practically a thing of the past, and summer range at that time free, is now created into forest reserve and has to be leased.

Testimony indicating either the drastic effects of the Wilson bill or the weak recuperative power of the American wool growing industry was developed by this colloquy between Champ Clark and Mr. Moore, of Mannington:

Mr. Moore—I want to say that we have not yet recovered from the shock that the Wilson law gave us.

Mr. Clark—If you cannot recover in eleven years, is not that evidence that you never can recover?

Mr. Moore—You understand, it takes eleven years or more to put flocks back to where they were, even by careful breeding.

Mr. Clark—There is not a sheep living that is 11 years old, is there?

Mr. Moore—Oh, yes; but it takes a long time to breed up again, and our fine wool is the result of careful breeding, as well as our natural advantages and conditions, the two things unite to help us in producing this fine quality of wool. We were well-nigh paralyzed in that whole section of country by the applied principle of the Wilson bill.

Mr. Clark—But I take it under the remarkable stimulus of the Dingley law eleven years would be sufficient to enable you to get back to where you were.

Mr. Moore—We are getting back.

Mr. Clark—But you have had eleven years, and you have not got back yet.

Mr. Moore—We will be back. I speak for the whole country.

William H. Harris, of Boston, asked for an ad valorem duty on wool, stating his objections to the present carpet wool schedules in these words:

As to the nature rather than the amount of the present impost on class 3 wools, I wish to voice the strongest objections. The present duty, jumping from 4 to 7 cents per pound, when the cost of

wool at its point of purchase crosses the line of 12 cents per pound, is nothing short of iniquitous. It opens the door for much fraudulent invoicing, very much unjust treatment on the part of the United States appraisers against the honest importer, and it places in the hands of the sellers of wools abroad a vehicle to rob the importer and manufacturer in the United States. It also makes it extremely risky for an importer here to handle many wools when the cost is hovering around the 12-cent dividing line. It has undoubtedly done serious injury to the carpet industry of this country. It enables the seller abroad at times to exact from the buyer here the extreme low-duty limit of just under 12 cents per pound for all desirable carpet wools that should otherwise range in price to the buyer from 9 to 12 cents. I could also give you concrete instances where the buyer in this country is mulcted of an additional 1 to 1 1/2 cents per pound by the simple expedient of establishing an accepted market of origin for certain wools farther in the interior.

A committee consisting of Robert P. Perkins, Thompsonville, Conn.; Charles F. Fairbanks, Boston; Robert Dorman, Philadelphia, and George McNeir, Amsterdam, N. Y., and representing the carpet industry, presented this very clear statement of their views on the carpet wool and carpet schedules:

We submit that the amount of capital invested in the manufacture of floor coverings in the United States is approximately $75,000,000;

That the industry gives employment to 35,000 persons, mostly skilled laborers, who are better paid than the employes of any other branch of the woolen industry;

That the wages of operatives in carpet mills in the United States are two and one-half times higher than the wages paid for similar labor in any other country;

That the carpet weavers of the United States are more steadily employed than those of any other country;

That the value of the annual production of floor coverings in the United States is approximately $65,000,000;

That the prices of floor coverings to consumers are fully 50 per cent. less than they were forty years ago, as will be seen by the prices of the following varieties of carpetings in:

	1875.	1908.
Wiltons	$3.25	$2.10
Brussels	2.00	1.15
Tapestry	1.15	.67½
Axminster	2.00	.90
Ingrain	1.05	.52½

That the present duties are only sufficient to measure the difference in the cost of labor at home and abroad, and at the same time compensate for the high duties on carpet wools;

That the present duties have not enabled the manufacturer to make more than a fair return upon his investment, nor have they resulted in the creation of a monopoly or so-called "trust" in this branch of industry; the manufacturers (about 140 in number) are independent of each other and are scattered through the New England States, New York, New Jersey and Pennsylvania;

We do not desire to advocate any special tariff measure, but simply to point out to your committee that under the present tariff on carpet wools a great and unnecessary hardship is inflicted upon the manufacture of carpets.

Carpet wools are exclusively of foreign growth. A clear line of distinction can be drawn between carpet wools and wools classified as of the first and second class; therefore any duty fixed on carpet wools must be regarded as purely a duty of revenue, and it has always been so considered.

The present rate on wools of the third class or carpet wools is 4 cents a pound if the value be 12 cents or less per pound, and is 7 cents per pound if the value be over 12 cents per pound.

We submit that the application of specific rates based on the value of wool is unjust, and places the American manufacturer at a great disadvantage with his foreign competitors in the purchase of his wools.

Carpet wools being of foreign growth, the market price is based on the value in foreign markets; therefore, when the price is at the low-duty limit the foreign competitors, by overbidding the American manufacturer by an even 1 per cent., force the American manufacturer to pay an additional 3 cents per pound in duties, an advance of 25 per cent. over the cost to the foreign manufacturer.

As the limit of 12 cents is based on the market value at the time of shipment to the United States, it leaves the American manufacturer, although he has purchased his wools under the low-duty limit, with the risk of an advance in the market value to over 12 cents between the time of his actual purchase and the delivery of the wool to the transportation company, in which case he has to pay 3 cents per pound additional duty.

An ad valorem duty adapts itself in every instance to these conditions, and the duty is high or low according to the value. We believe the Government will get more duty under an ad valorem duty on carpet wools than under a specific duty. The statistics justify this belief. No difficulty will be found in fixing the value of these wools, for their value in the European market is as well known through the market reports as the price of wheat, corn or cotton and no difficulty was experienced in fixing the value of these wools under the law of 1890.

If a revision of the tariff at this time means a lowering of rates, we assume that no reduction will be made in the specific duties relating to floor coverings without a corresponding reduction on all raw materials entering into the manufacture of these goods, including wool, linen, cotton, jute and dyes.

No change should in any event be made in the ad valorem rates on carpets and rugs. These are the same rates fixed by the McKinley and Wilson tariffs and the same rates accorded the woolen industry generally.

H. E. Miles, of Racine, Wis., chairman of the tariff committee of the National Association of Manufacturers, appeared before the committee at three of the hearings, and on Dec. 8th referred particularly to textiles. He said:

If there is any industry in the United States that deserves protection, in my judgment, it is the textile industry, and there is no question but most industries do need very considerable protection. The need of the textile industry for protection does not, however, call for exorbitant or unreasonable rates, nor rates that signify misjudgment and miscalculation. I am opposed to that sort of tariff which meets the definition of the Supreme Court of the United States as "robbery in the name of the law called taxation," but the putting of steel at a very low rate of duty or on the free list is no reason for reducing the rates, for instance, on hosiery, which, as far as I know, are necessary as now imposed, being 65 per cent. and less.

Mr. Miles also gave the data regarding the shrinkage, labor cost and duty on worsted tops, yarns and goods, which appeared in our December issue, and emphasized the need of an equalization of rates. There has been more or less misapprehension, shared by ourselves, regarding the position of the "National" on tariff revision. After a personal investigation of the facts we feel confident the fears that this influential association had become committed to a radical, tariff smashing policy are unfounded; that on the contrary its position on tariff revision appears to be such that the textile trade can and should count on its cooperation in protecting the interests of the industry.

Among the most vigorous statements made to the Committee are those presented by representatives of the carded woolen industry. They claim that the existing rates discriminate against their branch of wool manufacturing and in favor of the worsted manufacturers. Following are extracts from the letter of Jonathan Ring & Son, Philadelphia, representing the carded woolen spinners and manufacturers in that city and elsewhere:

We represent the woolen manufacturers and spinners in the city of Philadelphia for themselves and the large number of manufacturers in other parts of the United States, and their employes appeal to you in the framing of a tariff bill which relates to wool and woolen goods that you consider their interests and the measure of protection that they require. We do not ask for free raw stock.

The woolen industry of this country represents about 8,000 sets of machines with a capital invested in mills and machinery of over $100,000,000. This does not include the weaving and finishing of the products, which we believe would include about as much more. The number of persons employed in the woolen business alone is about 100,000, and about the same additional number in the weaving and finishing branch of the business. The annual pay roll is about $50,000,000, and with the weaving and finishing at least double this amount.

The tariff act of 1897, otherwise known as the "Dingley bill," has been stated before the committee as satisfactory to the woolen manufacturers. We do not so consider it. Having had experience under its operation, we have found that it discriminates against us. The nature of our fabrics is such that we have to compete in our markets with fabrics and cloth manufactured of worsted.

Either the grower of washed combing wool should have placed upon his product the same rate of duty as the grower of washed clothing wool,—thereby giving to him the same measure of protection by which means one of the intents of the tariff will be fulfilled, the stimulating of an industry that is capable of indefinite expansion,—or the woolen manufacturer should not be asked to pay any excess of duty upon his washed clothing wool over and above the duty paid upon the raw stock of his competitors.

We would also call your attention to other kinds of stocks, which are the raw stocks of the woolen manufacturer, viz, noils, top waste, slubbing waste roving waste, ring waste, thread waste, etc., all of these being by-products made by the worsted manufacturer in the process of manufacturing worsted yarns.

Noils are a by-product. They are the short stock combed out of the long-stapled wools and cannot again be used by the worsted manufacturer. They can only be manufactured by the carding process, and therefore become the raw material of the woolen manufacturer. The peculiar situation is this: The combing wools from which this article is made (much of it washed) have a low rate of duty; yet the by-product, noils, losing from 10 to 25 per cent. in scouring and cleaning, not being worth near the value of the original wool from which they are combed, are made dutiable at a prohibitory rate, manifestly working to the benefit and advantage of the worsted manufacturer and to the detriment and disadvantage of the woolen manufacturer.

The Hamill Spinning Co., Germantown, Pa., took the same position in these words.

We are in favor of a tariff to protect the wool growers and manufacturers, but the present duty of 20 cents per pound on noils, and 30 cents per pound on wastes, is prohibitive.

We would suggest to make the duty on noils and wastes to be proportionate to the duty on the original wools, from which these are taken, and make a just distinction in the rate of duty for the various grades. Noils at present made from carpet wools bear the same duty as those from the finer grades.

The woolen manufacturer is handicapped very much on account of present duty. The foreign manufacturers buy these classes of stocks so low in their countries that they are enabled to export the goods to this country, to the detriment of the American manufacturers.

This state of affairs should be rectified, so that much idle machinery could be started up again and

make the business healthy, which would be the means of giving employment to many workers in woolen mills.

Other letters of the same import were submitted, among the signers being Plate & Clark, Brooklyn, N. Y., the Fitwell Knitting Co., Cohoes, N. Y., W. J. Dickey & Sons, Oella, Md.

Charles S. Stevens of Quinebaug, Conn., filed with the Committee this very forcible appeal for a reduction of the tariff on the raw material used by the carded woolen industry:

Year by year the fabrics manufactured from wool by the process of worsted spinning have become the accepted fabric for men's and women's wear by the wealthy and well-to-do class, leaving the woolen mills as distinguished from the worsted mills the task of making a serviceable, cheaper fabric for the use of the mass of people. The supply of fleece wool has been more and more absorbed each year by the worsted mill, as above stated, leaving to the woolen mill as their only supply of raw material the by-products of worsted spinning and weaving, together with the various fibers known as "wool substitutes," together with offgrade wools unfit for combing.

Chief among these by-products are noils and spinner's waste, so called, which, with other substitutes, carry under the present tariff so high rate of duty, varying from 80 to 500 per cent., and meaning to the worsted spinner so large a profit as a by-product, as to materially cheapen the clothing of the rich and increase the cost of clothing to the less fortunate citizens of our country. As the avowed purpose of protection is to benefit the American working people, I assume with boldness that your first purpose in revising a tariff will be to increase the revenue, while bringing relief to working citizens.

The present tariff imposes a duty on:

	Cents per pound.
Top waste	30
Noils	20
Shoddy	25
Thread or spinner's waste	20
Woolen rags	10

These articles must of necessity, in combination with cotton, and notwithstanding the stigma that attaches to the names under which some of these articles are known to commerce, still remain the raw material from which the woolen clothing for the workingmen and his family must be manufactured. They are all by-products of other processes which can never be cast aside, because of their worth, and will inevitably be combined to produce the best possible product and sold at a price within the reach of all.

The old argument that a high duty on by-products will prevent their use is proved fallacious, because the higher the price of wool the more of the cheaper substitutes must be used to bring the price of the cheaper fabric within reach of those of small resource.

At the present prohibitive rate of tariff no revenue is derived from imports of these articles, while under a lower rate of duty the revenue would be increased and the clothing of the poor improved, while furnishing employment to many woolen mills now standing idle.

My suggestion is that in place of the present specific duty on all these by-products, you should substitute an ad valorem duty of 10 per cent., and then, if you deem it wise, reduce the tariff correspondingly upon the goods manufactured from these articles.

The letter from Edward Moir, of Marcellus, N. Y., to which reference was made in our last issue, gave figures to illustrate the burden borne by the carded woolen industry:

Under the present specific system the woolen manufacturer is very severely handicapped on his raw material. As stated at the meeting referred to, it is evident that one branch of the textile industry is greatly favored by the terms and method of collecting duty on its raw material coming from abroad. The writer, by way of illustration, cited wools used by such as the Arlington and other mills, comparing same with wools that would be desirable for the manufacture of various lines of woolens. In the first place, English-pulled and fleece-washed wools suitable for combing purposes may be imported, paying a duty of 12 cents per pound. These wools, in washing, will lose from 16 to 28 per cent., whereas woolen manufacturers who want to use Cape, Montevideo, or fine Australian, averaging 65 per cent., washing loss, must pay 11 cents per pound duty. Let us see the advantage of this to the worsted industry against the woolen manufacturer. We will say the Arlington Mill brings in pulled wool losing 16 per cent. in washing. The duty is 12 cents per pound. The compensatory duty on the cloth is four times the rate of duty on the wool, so that on 4 pounds of this wool the return would be 3.36 clean pounds, on which 48 cents duty is paid, or 14.3 cents per clean pound. On the other hand, should the woolen manufacturer bring in fine wool losing 65 per cent. in washing, at a duty of 11 cents per pound, the compensatory duty on the cloth being four times the wool duty, he would pay on 4 pounds 44 cents and get back 1 2/5 pounds clean wool, making the duty per pound 31 3/7 cents, as against less than 15 cents paid by the worsted manufacturer, using many of these English wools. A wool that shinks 70 per cent., paying 11 cents per pound duty, is nearly 37 cents per pound clean, the extreme difference being about 22 cents per pound.

William Whitman, Boston, filed with the Committee a reply to Mr. Moir, from which we take the following extract:

Mr. Moir's first specific point relates to a meeting of a committee of the National Association of Wool Manufacturers and a committee of the National Wool Growers' Association some two months ago, "the result of this conferenct," to quote Mr. Moir's words, "being that both associations agreed to stand pat on Schedule K of the

Dingley tariff." Mr. Moir adds that he strongly dissents from such a compact, and apparently wishes Congress to regard it as something reprehensible.

This conference came about in a perfectly natural and proper way, on the initiative of the officers of the National Wool Growers' Association, with whom we are in constant correspondence because of the close interdependence of our every-day business interests. These gentlemen, resident in the Far West, wrote to us in Boston last summer that there was grave concern in the western wool-growing States because of persistent assertions that the eastern manufacturers, while asking for protection for themselves, were going to command free trade in wool in the approaching revision of the tariff. It seemed necessary to put an end in a frank and authoritative way to such misrepresentations. With that end in view a special committee of the National Association of Wool Manufacturers met a committee of the National Wool Growers' Association in Chicago on October 15, 1908. Several subjects of importance to both branches of the wool industry were discussed, the wool-growers were directly and positively assured that the manufacturers had no idea of demanding protection for themselves and opposing protection for the farmers and ranchmen of the West, and a resolution was unanimously adopted declaring for a fair and adequate tariff alike for those Americans who raise the wool and for those who spin and weave the fabrics.

The second chief specific point of Mr. Moir's letter is stated thus:

"When we consider the enormous advantage accruing to part of the worsted industry, such as are bringing fleece-washed wools at a single-duty rate, one does not wonder at Mr. Whitman's association taking time by the forelock and making such a compact with the wool-growers. Anyone can see the 'nigger in this fence,' as all other fleece-washed wools suitable for woolen purposes must pay double duty, or 22 cents per pound, and on heavier shrunk wool."

It is difficult to understand what Mr. Moir means in these words "enormous advantage." The total annual importations of Class II wools entered for consumption in the five years from 1904-1908, inclusive, average 15,108,304 pounds, as against a total annual average importation of Class I wools of 72,462,472 pounds for the same period, and against a total annual average production of domestic wools of similar kinds of 299,000,000 pounds. The bulk of the wools consumed in the worsted mills of the United States is made up not of the Class II wools, whose use is limited, but of Class I wools, which, if imported washed, pay the double rate of duty.

This single duty on washed wools of Class II has stood in our tariff law since 1867. The desire of the American wool-growers in the tariff of 1867, as it is their desire today, was to secure ample protection against the importation of clothing wools which compete with the wools produced in this country. All of the clothing wools under the tariffs of 1857, 1861, and 1864 had been imported in an unwashed condition. If they could be imported washed they would evade the duty intended, and this provision was put into the law in 1867 to prevent it. The wools of Class II had always been imported in a washed condition. To apply a double duty to them would have been practically to prohibit their importation. A double duty today would also be prohibitive, for there are no washed Class II wools in existence within the tariff definition except those of Great Britain and Canada. These always reach the market in a washed condition, and a double duty would be equivalent to an edict absolutely forbidding their importation, and would have a disastrous effect upon those branches of manufacturing which require these particular wools for lustrous effects. The price of Class II washed wools in Great Britain is enough higher than unwashed wools similar in character grown in other countries to bring them to a parity of value in a scoured state under normal trade conditions.

An additional statement was addressed by Mr. Whitman to Congressman Boutell, in regard to the Dingley tariff on tops and from which we takethe following extracts:

You will recall asking me some questions about tops on Wednesday last, when I presented a statement to the Ways and Means Committee. Having your questions in mind, I take the liberty of sending you a little book entitled "Tops, a New American Industry," which was published by the Arlington Mills in 1898. This book contains information not only about tops, but about the worsted industry, which I think may interest you.

While the top mill is an important adjunct to our general worsted enterprise, it has had to encounter much opposition.

First. The prejudice on the part of spinners against buying tops has not been wholly overcome.

Second. It has taken a long time to create a market.

Third. The market conditions have been such that it has been difficult to buy wool in the market, put it into top, and sell it at a satisfactory profit.

Fourth. The trend of the business is toward the wool dealer, and a very large part of our machinery, other than what we need for our own work, is used in combing wool on commission for wool dealers and other manufacturers.

It is unnecessary for me to state that only so much wool can be used in the country, and so far as revenue is concerned, whatever might be lost from not importing tops would be offset by importing wool.

I think you will find that the little book will give you more information on the subject than it would be possible to obtain from any other source, and I believe the information to be such that you can rely upon it.

The Perseverance Worsted Co., Woonsocket, R. I., asked for the adoption of exclusively specific rates on wool goods in the new bill, and advocated a classification of worsted yarn by yarn sizes; and of worsted goods by threads per inch, as this in the petitioner's opinion, "almost invariably determines the labor cost in the goods, produc-

tion of same and cost of production." No definite schedule was submitted to illustrate the working of an exclusively specific duty on wool goods, and if the writer of the letter undertakes to frame one, we are inclined to believe his faith in the merit of his specific scheme will be weakened.

A very instructive statement was filed by Fred Butterfield & Co., New York, who have a house at Bradford, England. The letter is too long to be given here, but we have taken the following extract from it bearing on the important question of how much wool is required for a pound of cloth. This information was supplied to Messrs. Butterfield & Co. in 1896 by various Bradford spinners:

A.

It takes 2.56 pounds of greasy Australian wool, costing 15 cents a pound, to make a pound of top.

It takes 2.13 pounds of greasy Australian wool, costing 18 cents a pound, to make 1 pound of top.

One pound of Yorkshire or Lincoln wool will yield 70 per cent. of top.

One pound of Cape mohair yields 80 per cent. of top and 13 per cent. of noil.

B.

Two pounds 5 ounces of greasy Australian merino will make 16 ounces of top.

Eighteen ounces of top will make 1 pound of yarn in the oil.

Sixteen ounces of yarn will make 15 ounces of twill cloth.

C.

One and one-half pounds crossbred wool will make 1 pound of top and 1 ounce of noil.

Eighteen ounces of top will make 1 pound of yarn in the oil.

Sixteen and one-half ounces of yarn will make 15 1/2 ounces of twill cloth in the grey.

From this summary of the statements, it is evident that one of the most difficult problems before the Committee is the removal of the inequalities in the tariff on wool and woolens. The new tariff should afford adequate protection to all branches of the industry. That is the basic principle on which the revision must be made. It should also bear equally on all branches, favoring none at the expense of the others or of the consumer. The inequalities encountered first are those in rates on wool. As it comes from the sheep's back and is received at the mill, wool contains a widely varying amount of grease and dirt. Some lots may consist of three-quarters grease and one-quarter clean wool; other lots, one-quarter grease and three-quarters clean wool; and no two lots shrink exactly alike.

The Dingley law fixes the tariff on wool at a uniform amount per pound of grease wool regardless of the amount of grease it contains. Here lies the fundamental and insurmountable difficulty with a specific duty on grease wool. A duty of 11 cents a pound amounts in fact to 44 cents per pound of clean wool if there is 75 per cent. of grease present; and to only 14 2/3 cents per pound of clean wool if there is 25 per cent. of grease. The result is that the 11 cent duty on wool excludes the heavy shrinking wools from the country. In effect the law says: "No wool shrinking over a certain amount shall be imported into the United States except at a loss." It is impossible to escape this prohibition by scouring the wool abroad because the law expressly provides that the duty on scoured wool shall be three times the duty on grease wool.

The wools required by the carded woolen industry are the short, heavy shrinking grades. This explains one reason why the specific duty on wool is a serious burden on the carded woolen industry and bears lightly on the worsted trade for which the light shrinking wools are chiefly adapted.

Deprived wholly of any supply of foreign wool the carded woolen industry is forced to rely on the domestic clip, which provides less than half the wool (clean weight) used in the country. This domestic supply is still further restricted by the fact that worsted machinery has been steadily developed so as to comb and spin shorter wools for worsted goods. This is a second reason why the carded woolen industry is placed at a disadvantage.

Restricted to a small part of a small domestic clip the woolen manufacturer turns to the by-products of worsted manufacture and to reworked wool (shoddy) for a supply of raw material, and again finds conditions adverse to him. The duty on noils, the by-product of worsted combing, which the worsted spinner cannot use, is so high as to prohibit importations, and as a result the carded woolen manufacturer is forced to pay the

worsted manufacturer a high price for a very limited supply of domestic noils.

The carded woolen manufacturer finds a similar condition when he turns from noils to wool waste and reworked wool. Prohibitory duties on the foreign supply restrict him to the narrow limits of the home supply.

The products of the carded woolen industry are necessary in order to provide the people with warm clothing at a low price. They are preeminently the clothing of the poor and of those in moderate circumstances. The effect of the present law has been to make cotton, instead of carded woolen cloth, the substitute for the higher priced worsted, and thus deprive the consumer of an adequate supply of warm clothing at a moderate price.

It is difficult to avoid the conclusion that the carded woolen industry has been starved, while the worsted industry has been placed in a favorable position by reason of the low duty on light shrinking worsted wools and of the high prices at which the worsted by-products have been sold to carded woolen and knitting mills.

It is not surprising that the carded woolen industry has languished under these conditions, nor that those identified with it should now appeal vehemently for a recasting of the tariff on wool and wool goods at the coming revision. It is our purpose here not to recommend a definite schedule, but rather to point out facts that would aid in framing such a schedule. If objection is raised to the abandonment of specific duties on wool on the score of danger of undervaluations, this question may well be asked:

"Is the evil of undervaluations with an ad valorem tariff, which evil can be limited by the vigilance of the government, likely to be greater than the evil of discrimination against heavy shrinking wools, which evil cannot be limited in any way whatever?" It is up to the advocates of specific rates on wool to propose a schedule under which such rates will not favor some and discriminate against others.

Another problem before the Committee and which is still more closely interlaced with the technical details of textile manufacturing, is the framing of a schedule of rates on wool fabrics, which will be uniform on all grades of goods. The first step in reaching a solution of this problem is to obtain facts. The present law is based on the assumption that it requires four pounds of grease wool to make one pound of wool cloth. The error of such a general proposition is at once evident because of the variable shrinkage of grease wools. But it is not enough for the Committee to know that the 4 to 1 ratio is wrong. They are charged with the task of finding out what is right. It will aid them in this search to know just how the presnt law with its 4 to 1 ratio has operated on different fabrics. With this object in view we have applied the Dingley rates to a number of wool fabrics which have either been made or analyzed by us personally. We know as well as it is possible for anyone to know, how much material is required to manufacture a pound of the respective cloths, and present here the results of our calculations. We believe this is the first time that the results of such an examination of the Dingley schedules have been published:

A25—Worsted Serge. 18.4 ozs. per yard, 54 inches wide. 10,000 yds. at $1.00, $10,000. 11,500 lbs. cloth. This requires 21,941 lbs. grease wool.

Dingley duty:	Duty.	%
11,500 lbs. cloth, 44c.	$5,060.00	50.6
55 per cent. of $10,000	5,500.00	55.
Total duty	$10,560.00	105.6
Actual compensatory required:		
21,941 lbs. grease wool, 11c.	$2,413.51	24.1
Actual protection	$8,146.49	81.5

A96—Cotton Warp Dress Goods. 6.7 ozs. per yard, 50 inches wide. 10,000 yds. at 25c., $2,500. 4,187 lbs. cloth. This requires 4.515 lbs. of grease wool.

Dingley duty:	Duty.	%
4,187 lbs. cloth, 44c.	$1,842.28	73.7
50 per cent. of $2,500	1,250.00	50.
Total duty	$3,092.28	123.7
Actual compensatory required:		
4.515 lbs. grease wool, 11c.	$496.65	19.9
Actual protection	$2,595.63	103.8

C96—Worsted Dress Goods. 6.7 ozs. per yard, 50 inches wide. 10,000 yds. at 40c., $4,000. 4,187 lbs. cloth. This will require 9,760 lbs. grease wool.

Dingley duty:	Duty.	%
4,187 lbs. cloth, 44c.	$1,842.28	46
55 per cent. of $4,000	2,200.00	55
Total duty	$4,042.28	101
Actual compensatory required:		
9,760 lbs. grease wool, 11c.	$1,073.60	26.8
Actual protection	$2,968.68	74.2

E119—Worsted Serge, piece dyed. 14 1/2 ozs. per yard, 56 inches. 10,000 yds. at 90c., $9,000. 9,062 lbs. cloth. This would require 20,945 lbs. grease wool.

Dingley duty:	Duty.	%
9,062 lbs. cloth, 44c.	$3,987.28	44.3
55 per cent. of $9,000	4,950.00	55.
Total duty	$8,937.28	99.3
Actual compensatory required:		
20,945 lbs., 11c.	$2,303.95	25.6
Actual protection	$6,633.33	73.7

A220—Cotton Worsted. 14 ozs., 55 inches wide. 10,000 yds. at 50c., $5,000. 8,750 lbs. cloth. This would require 3,125 lbs. grease wool.

Dingley duty:	Duty.	%
8,750 lbs., 44c.	$3,850.00	77
50 per cent. of $5,000	2,500.00	50
Total duty	$6,350.00	127
Actual compensatory required:		
3,125 lbs., 11c.	$343.75	6.8
Actual protection	$6,006.25	120.2

A207—Cotton Warp Casket Cloth, cotton, wool and shoddy. 15 1/2 ozs. per yard, 68 inches wide. 10,000 yds. at 50c., $5,000. 9,688 lbs. cloth. This will require 2,375 lbs. cotton warp, 1,600 lbs. grease wool, 1,125 lbs. raw cotton, 9,563 lbs. shoddy.

Dingley duty:	Duty.	%
9,688 lbs. cloth, 44c.	$4,262.72	85.2
50 per cent. of $5,000	2,500.00	50.
Total duty	$6,762.72	135.2
Actual compensatory required:		
1,600 lbs., 11c.	$1,760.00	
9,563 lbs., 5c.	478.15	
	$2,238.15	44.8
Actual protection	$4,524.57	90.4

608—Piece Dyed Kersey. 25 ozs. per yard, 55 inches. Stock: Back warp, 40 per cent. Oregon, 60 per cent. shoddy. Face warp and filling, 50 per cent. California, 50 per cent. shoddy. 10,000 yds., $1.25, $12,500. 15,625 lbs. cloth. This would require 32,426 lbs. wool in grease, 13,167 lbs. shoddy.

Dingley duty:	Duty.	%
15,625 lbs., 44c.	$6,875.00	55
55 per cent. of $12,500	6,875.00	55
Total duty	$13,750.00	110
Actual compensatory required:		
32,426 lbs., 11c.	$3,566.86	
13,167 lbs., 5c.	658.35	
	$4,225.21	33.8
Actual protection	$9,524.79	76.2

E382—Cotton Warp Beaver. 28 ozs. per yard, 55 inches. 10,000 yds. at 75c., $7,500. 17,500 lbs. This quantity would require 3,611 lbs. raw cotton, 1,309 lbs. cotton warp, 22,123 lbs. shoddy, 4,886 lbs. fine wool, 1,137 lbs. coarse wool.

Dingley duty:	Duty.	%
17,500 lbs., 44c.	$7,700.00	102.7
50 per cent. of $7,500	3,750.00	50.
Total duty	$11,450.00	152.7
Actual compensatory required:		
6,023 lbs., 11c.	$662.53	
22,123 lbs., 5c.	1,106.15	
	$1,768.68	23.6
Actual protection	$9,681.32	119.1

E24—Irish Frieze. 34 ozs. per yard, 55 inches. Stock, 50 per cent. wool and 50 per cent. waste. 10,000 yds. at $1.00, $10,000. 21,250 lbs. cloth. This requires 23,625 lbs. grease wool, 17,719 lbs. shoddy and waste.

Dingley duty:	Duty.	%
21,250 lbs., 44c.	$9,350.00	93.5
50 per cent. of $10,000	5,000.00	50.
Total duty	$14,350.00	143.5
Actual compensatory required:		
23,625 lbs., 11c.	$2,598.75	
17,719 lbs. at 5c.	885.95	
	$3,484.70	34.8
Actual protection	$10,865.30	108.7

A211—Wool Cassimere, Territory wool. 13 ozs. per yd., 54 inches wide. 10,000 yds. at 85c., $8,500. 8,125 lbs. cloth. This will require 32,143 lbs. grease wool, shrinking 65 per cent.

Dingley duty:	Duty.	%
8,125 lbs. cloth, 44c.	$3,575.00	42
55 per cent. of $8,500	4,675.00	55
Total duty	$8,250.00	97
Actual compensatory required:		
32,143 lbs., 11c.	$3,535.73	41.6
Actual protection	$4,714.27	55.4

DE—Wool Dress Goods, piece dyed. 6 ozs. per yard, 50 inches wide. 10,000 yds. at 40c., $4,000. 3,750 lbs. cloth. This would require 14,823 lbs. grease wool, shrinking 65 per cent.

Dingley duty:	Duty.	%
3,750 lbs., 44c.	$1,650.00	41.2
55 per cent of $4,000	2,200.00	55
Total duty	$3,850.00	96.2
Actual compensatory required:		
14,823 lbs., 11c.	$1,630.53	40.8
Actual protection	$2,219.47	55.4

It will be noticed that the "actual compensatory" is based on the amount of grease wool extended at 11 cents a pound and of waste or shoddy extended at 5 cents. This is on the assumption that the cost of wool in this country is increased by the full amount of the duty, which is not always the case. In the case of waste and shoddy 5 cents a pound has been allowed, because it would clearly be wrong to take the full amount of the duty, 10 to 20 cents, which in many cases is more than the total cost of the material in question. We have sent to England for samples of the cheap fabrics on which the compensatory duty per pound, owing to the lower valuation, is less than four times the duty on a pound, of wool, and hope to give the results of our analysis in an early issue.

The following summary enables a comparison to be made for each of the fabrics between the duty as divided between "compensatory" and "protective" in the present law and as actually divided in practice.

	Dingley Duty		Actual		
	Compensatory	Protective	Compensatory	Protective	Total Duty
A 25 Wors. Serge	50.6	55	24.1	81.5	105.6
A 96 Cotton Warp D. G.	73.7	50	19.9	103.8	123.7
C 96 Wors. Dress Goods	46	55	26.8	74.2	101
E 119 Wors. Serge Piece Dyed	44.3	55	25.6	73.7	99.3
A 220 Cotton Worsted	77	50	6.8	120.2	127
A 207 Cotton Warp Casket Cloth	85.2	50	44.8	90.4	135.2
608 Piece Dyed Kersey	55	55	33.8	76.2	110
E 382 Cotton Warp Beaver	102.7	50	23.6	119.1	152.7
E 24 Irish Frieze	93.5	50	34.8	108.7	143.5
A 211 Wool Cassimere	42	55	41.6	55.4	97
D. E. Wool Dress Goods	41.2	55	40.8	55.4	96.2

We have purposely excluded details of cost of manufacturing from these tables, in order to avoid complications and confine attention to one important phase of tariff revision. Even now they involve many details and require careful study in order to determine their bearing on the revision of the tariff. One of the defects in the present tariff on wool goods and perhaps the only one that attracts the attention of the public is that the aggregate ad valorem rates amount in many cases to considerably more than 100 per cent. Popular attention is also directed to the fact that the tariff is prohibitory on the cheaper grades of goods. This fact is being seized by politicians as a basis for the cry of discrimination against the poor and in favor of the rich. It is the part of wisdom for the textile trade to look the situation squarely in the face and devise some plan by which the friends of protection at Washington may be able to frame a law that will not only avoid favoring one branch of the wool and wool goods trade at the expense of the other, but which will remove all grounds for the belief on the part of the public that the rates favor the producer at the expense of the consumer.

When inequalities in a tariff are corrected someone must give up an unfair advantage in justice to others. The wool grower, the worsted spinner, the woolen manufacturer and Congress representing all interests including the consumer, should get together with the determination to incorporate in the tariff bill of 1909 the square deal of which we have heard so much for seven years. The wool grower may find that he needs protection against evils at home more than against imports from abroad; the worsted spinner may realize that his higher interests require a yielding up of some of the advantages he now possesses; while the carded woolen manufacturer would doubtless gladly exchange such tariff protection as he does not need for a supply of the raw material without which he cannot live. And this general equalization of rates, while affording adequate protection to American industry, will satisfy the consumer, who is the final arbiter in this country.

A majority of the people in the United States believe in adequate protection and want it incorporated in the new bill. They also want excessive protection abolished. Under these conditions the course for the textile industry to adopt is plain. It is to aid Congress to determine what is adequate protection and to insist that the rates on all goods shall be lowered or raised as may be necessary to bring them to the "adequate" mark.

The number of spindles in the eight important mills of Muelhausen in 1905 was 520,300, the largest mill alone having 143,000 and four others having from 50,000 to 86,000. Eight important weaving mills had in 1905 8,100 looms, and there were several small concerns. Five of the largest had had from 900 to 1,880 each.

SEASONABLE FABRICS.

DRESS GOODS.

With first hands the dress goods trade has been very satisfactory both on immediate and spring fabrics. During the early fall season the dress goods trade did not look very brisk, but as the season progressed orders were received for the desirable fall fabrics in all of the new shades and encouraged both the manufacturers and jobbers. The dress goods trade has been carried on a very conservative basis this season, the manufacturer making only what he had sold, and the retailer buying only what was really necessary for him to have to complete his already small stock. Under these conditions all hands will open up for the spring trade with clean stocks.

Owing to the weather conditions broadcloths continue to be very active, in fact they are the most favored fabrics in the dress goods market for immediate shipment. The popular shades continue to be very scarce, especially London smoke and wisteria in the medium weight chiffon broadcloth.

Stripes continue to predominate over checks and plaids, although the latter is gaining favor. Fig. 1 shows a 54 inch chevron stripe from Boessneck & Broesel at $1.20 a yard. Franz Merz is showing an attractive line of chevron stripes at $1.12 1/2 cents a yard. Cheviot suitings and unfinished worsted are very popular in the darker styles.

Piece-dyed fancies are selling freely for the early spring trade. Satin striped prunellas are favored by the trade for early spring. These fabrics are being displayed in a large range of desirable stripes in full color assortment. L. F. Dommerich & Co. offer a 50 inch fabric at $1.25 a yard.

Several of the manufacturers of wool batiste, henriettas and cashmeres report that they have already sold up their spring productions on these fabrics and that they are doing their utmost to make deliveries on time.

SILKS.

The silk market has shown very few changes during the past month. Satins continue to be the most favored fabric in the market. There is a shortage in the supply of the desirable shades of satins. Messalines and other soft faced silks continue to be in good demand. The manufacturers that make this class of goods are well satisfied with the orders they are receiving and even with their looms running at their full capacity they are unable to supply the demand. The trade are asking for a popular

FIG. 1.

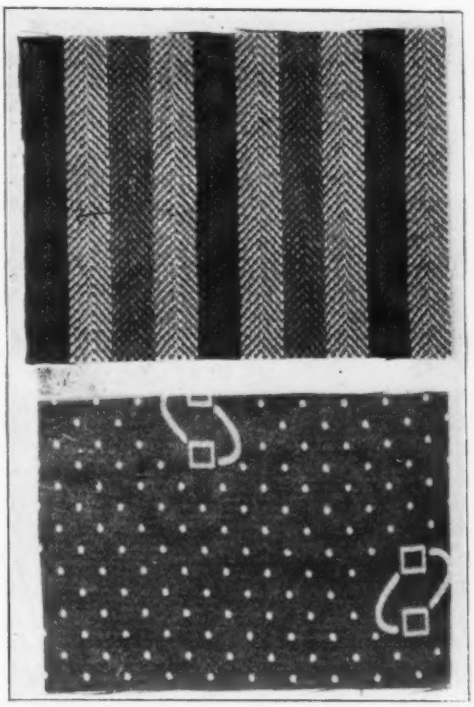


FIG. 2.

priced piece-dyed messaline which can be used for linings in place of plain colored taffetas.

Rough pongees are favored for early spring shipments. It was predicted by a number of manufacturers that last year would see the end of the vogue on rough pongees, but the prediction fell far short of the fact, as rough pongees have come in stronger than ever, especially in the new shades of taupe, wisteria, peacock, old rose, etc. The manufacturers hope to carry on a profitable trade on these rough silks during

the coming season. They are making up surplus stock to meet the demand.

Foulards are the next favored fabric for spring. These goods are being shown in a number of different qualities. The new spring shades are selling very freely in a wide range of patterns. Fig. 2 shows a very neat pattern, 24 inches wide, from Chas. Schoolhouse & Co. at 42 1/2 cents a yard.

Neat stripe effects continue to be very de-

FIG. 3.

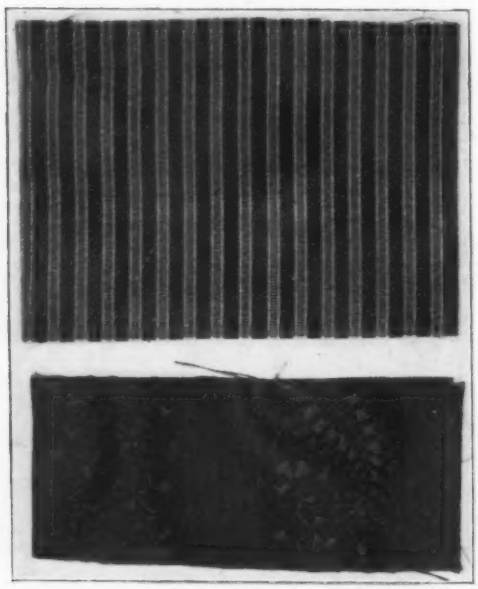


FIG. 4

sirable in the fancy silk market. Fig. 3 shows a 19 inch stripe from Givernaud Bros. at 42 1/2 cents a yard. Jacquard and Persian designs continue to be popular. Fig. 4 shows a 20 inch Persian design from Valentine & Bentley at 95 cents a yard.

The demand for black taffetas has fallen off during the last few months, but this will have no effect on the prices, as black taffeta stocks are low and the manufacturers are not making up any great amount of surplus stock.

COTTON GOODS.

That the prevailing conditions of the cotton goods market are much better by far than one year ago, is very evident by the number of orders that are being placed for all grades of cotton piece goods for immediate shipments. The larger operators say that under present conditions deliveries will begin to be slow, and that as a prosperous season is looked for it will be to their advantage to place their orders early and secure prompt attention.

Dress ginghams are the leading sellers. Orders are being received for these ginghams in the full assortment of styles and colorings. Stripes predominate over checks and plaids. Deliveries are being made promptly on all of the staple brands of dress ginghams.

The trade are taking very freely to side-band effects in all wash fabrics. Printed lawns and batiste with the side bands are favored for the early spring trade.

The demand for 4/4 bleached and unbleached muslins has been very active during the last few weeks. This was due mostly to the large number of retailers who kept their stocks down during the early part of the season and did not order their stocks for January sales until it was absolutely necessary to do so, thus causing several of the popular brands to be late in delivery.

Several of the manufacturers of sheets and pillow cases are sold up on their lines from four to five weeks. The supply of wide sheetings is short of the demand. While at the present time no advances are looked for in this branch of the trade, buyers are placing their orders for their future wants so as to be protected against future developments of the market.

With the recent advance of about 3/8 cents a yard, trade in the white goods market has been very active. Prompt deliveries of all staple white goods such as India linons, Persian lawns, nainsooks and long cloths are being made, but the converters feel that later in the season it will be impossible to make prompt shipments owing to the finisher's inability to secure the grey cloths. Checked nainsooks and checked lawns are favored very strongly for the spring trade.

The converters of cotton linings have advanced their prices on sateens about 5 per cent. This was caused by both the scarcity and advances that have been made on grey cloths.

WASHINGTON NOTES.

(From our Special Correspondent.)

At our interview last month with the Chief of the Bureau of Trade Relations, State Department, regarding the Ways and Means Committee's Consular enquiry into cost of production abroad, it was claimed that valuable information had been secured. From the Capitol end of the avenue comes another story, for it seems that very little was accomplished, not over seventy replies having been received in all, and few of these satisfactory. Such an outcome might have been expected, for the enquiry could but put the gentlemen of the consular service into some very awkward and embarrassing positions with the governments to which they were accredited. With no training for such work, handicapped by official position, with all that this means abroad, and no doubt out of all sympathy with the proposition and lacking in enthusiasm, the consuls began an enquiry that had a black eye at the very start. Such a means for securing information to aid in the framing of a new tariff law, was at least new, if it was not brilliant. In many instances the questions were returned to the State Department, unanswered, because it was impossible to secure replies that were at all reliable. The British and German manufacturers, particularly, resented the idea of being asked to assist in framing a tariff law that would keep their products out of the United States, and not only the English and German manufacturers, but those of other countries took a stand that practically defeated the object of the enquiry.

* * *

Well! What of it? At this stage of the tariff hearings the opinion is gently broached that it has not come up to popular anticipations. It is being hinted that the wise men of the Ways and Means Committee are not in earnest, and that little is being accomplished beyond giving prominence to the fact that there have come before the committee more patriotic Americans who would revise the tariff up, with a big U, than those who wish an honest revision downwards. Mr. Taft was nominated and elected upon the declaration of a policy of tariff legislation based upon the difference in the cost of production at home and abroad, plus a reasonable profit, and the Ways and Means Committee practically promised tariff revision along these lines. When Mr. Taft calls the extra session of Congress, as he is bound to do at an early date, will these gentlemen at the semi-circle, in the foreign furnished hall of inquisition, on the hill, be able to make good?

* * *

From two sources I have heard recently of the proposed establishment of a big ramie spinning enterprise, though I am unable to make a definite statement. While there has been a deal of experimentation in the United States with this superb fiber, for years past, I cannot learn that any spinning mills have yet been established. It is claimed that considerable foreign stock is imported and that a good deal of it goes to the silk mills of Paterson, where the fiber is employed for mixing with silk. Ramie manufacture would seem to be a profitable business, with tops worth 70 cents per pound and the noils 17 cents, while the Chinese raw material can be laid down in New York from 6 to 8 cents per pound. I learn through a private communication from the U. S. Consul at Hong Kong that at the present time considerable interest is being taken in ramie spinning in China (other than for the manufacture of the native "grass-cloth"). A company in Shanghai, controlled by British capital, proposes to engage in the manufacture of ramie yarns for export. In a report of the company the statement is made that the outside demand for ramie yarn is far in excess of that for filasse, and that hundreds of tons of yarns could be readily disposed of for the manufacture of dress goods, tapestries, muslins, heavy canvas, etc.

* * *

In the course of the next few weeks, probably before another issue of the Textile World Record, the Cotton Standardization Committee—called by the Secretary of Agriculture in accordance with the law of Congress—will have begun its work. At this date I am not able to present the names of the Committee, but the assurance is given that they will be prominent and representa-

tive men in the cotton centers from which they come. There will be one member each from all of the important cotton markets in the United States, viz: Boston, New York, New Orleans, Memphis, Atlanta, the Carolinas and Texas; and from each of the three most important European countries, that are consumers of cotton, a representative business man has been selected.

All cotton interests will be fully represented at the meetings of the committee, and the effort is being made to give the cotton trade a standardization scheme that will be practical and acceptable. The Cotton Exchanges in this county have already contributed standardized samples. These are held by Dr. N. A. Cobb, of the Department of Agriculture, under seal, and the cases will only be opened in the presence of the entire committee when it convenes to begin its labors. RENOUARD.

THE TENACITY OF CUSTOM.

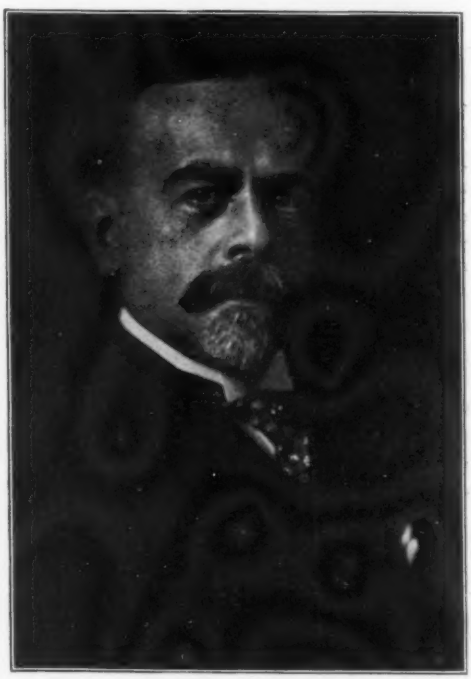
The difficulty involved in uprooting deep-set custom—one that we shall face when we come to introduce the new system of weights and measures—is very strongly emphasized by an experience of the German government in introducing "new-fangled money." The incident is thus set forth in a late issue of the London Times:

> As a result of persistent agitation on the part of the Conservatives throughout Germany the German "thaler" or three-mark pieces, which were withdrawn from circulation two years ago, have been reintroduced in their old form. The reintroduction of these coins is chiefly due to the fact that the agricultural sections of the population have by centuries of use become so accustomed to them that the decimal coinage system was felt to be a positive hardship. In the numerous districts in which from time immemorial incomes and values have been reckoned in thalers the more modern system of calculation by marks has never become general, and the withdrawal of the traditional unit, which was regarded with almost superstitious veneration, was viewed with profound misgivings since many could not rid themselves of an uneasy suspicion that they were not getting full measure under what they considered to be the "new-fangled" system. The five-mark pieces are extremely unwieldy, and notwithstanding all the efforts of the authorities these coins have never become popular.

And in the same manner are we going to mystify and trouble the people here. There are a great many of us who will never buy a kilo of sugar or walk a few kilometers before breakfast.—The Manila Times.

A NEW SECRETARY.

The friends of John B. McPherson, who has for the past five years served as secretary of the National Association of Wool Manufacturers, have been aware for some time that the state of his health would not permit him to continue in that position. Since his serious illness in 1907 he has not fully recovered and his resignation has been



WINTHROP L. MARVIN, THE NEW SECRETARY OF THE NATIONAL ASSOCIATION OF WOOL MANUFACTURERS.

in the hands of the Executive Committee for some months, to take effect on the election of his successor.

Winthrop L. Marvin of Boston has been chosen. He is a former newspaper man, having been for a number of years connected with the Boston Journal as editorial writer and associate editor. From 1901-04 he was a member of the Massachusetts Civil Service Commission and in 1904-05 served

as secretary of the Congressional Merchant Marine Commission in Washington.

THE SHODDY TRADE IN ENGLAND.

(By Our Special Correspondent.)

"If you want to know anything about rags"—people told me—"go to see our Mayor." This was in Dewsbury, with which town Batley dovetails and with which it must ultimately amalgamate. For purposes of trade the towns are as one, with the difference that Dewsbury warehouses most of the rags which both places use in the manufacture of shoddy.

F. W. Reuss, Mayor, is in business a rag auctioneer, who since 1859 has been handling rags from all the countries from which it is possible to get a merchandisable article. Habits of close observation have made him a unique authority on the subject. In fifty years he has seen many attacks upon a beneficent industry as baseless as the one delivered from Canada and he knows why authors of all similar scares must fail to prove their case. His testimony is the better because the rag importer and exporter is quite impartial. Suppose the Canadians get the extra protection for which they clamor. To the dealer that spells no loss of trade. Nothing is more certain than that in that event Canadian mills will once more be buyers of Dewsbury rags as in the day before the present preferential tariff. There are mementos of that trade in Dewsbury and Batley in the shape of accounts dated 1901 and earlier for which remittances are still owing.

Thus the facts lend themselves to calm discussion by one like Mr. Reuss who now tells from whence the foreign rags come which pour into Batley and Dewsbury at the even rate of 1,000 tons a week. They come "from the Northern countries, from the wealthy countries, from the districts in which clothes are not too much worn out. Rule a line across the map of Europe cutting off all countries south of France. There are no good manufacturing rags to be got from Portugal, Spain, Italy or the Levant. From the hot countries the rags are poor and threadbare, their fibers are broken and their wool denatured by too long service under burning suns.

The total of 1,000 tons weekly is exclusive of the domestic supply of which the weight can only be estimated. There are 880 rag pulling machines in Yorkshire, capable of treating 1 1/2 tons each per week of hard material and up to 3 tons of soft. Average their work at 2 tons and it will be clear that 1,500 tons are wanted to keep the machines in steady employment and still more to provide for general overtime. About the 5-600

OUR SPECIAL CORRESPONDENT.

domestic tons Mr. Reuss has to say that the description varies—"Still the rule applies. Prosperous districts yield valuable rags. Where you have a population which does not wear its clothes too long, where the second-hand clothing trade is small or absent—there you get good, sound, clean rags excellent for making sound cloth. Where extremes meet and a large poor class coexists with a large and well-to-do one, as in London, Liverpool and the great cities, you get very poor as well as very good rags."

Answering an interpolation, Mr. Reuss

broke out: "But the cloth manufacturer won't have poor rags and can't afford to buy them. And the cheaper the cloth and the less he can use wool and the more imperative is it that the rags shall be sound ones or how in de vorldt (Mr. Reuss is German) shall he get the strength into de clot? Is he

A TYPICAL RAG WAREHOUSE AT BATLEY, ENGLAND.

going to pay $2 to $3 a hundredweight for stuff that shall all fall under the cards or wash out in the scouring?" Good rags go with good habits and decent sanitary precautions. Insisting on a certain standard of quality the manufacturer automatically ensures a certain standard also of cleanliness.

Even if it be off the strict line of inquiry mention has to be made of an item, especially significant to Americans, which incidentally affords some proof of the reality of the selective processes. Dewsbury has been receiving since last year large quantities of rags from America and with some thousands of the bales on hand dealers, pullers and manufacturers are in a quandary. Time was when the American article was the best coming into the market. It is now the worst. In Mr. Reuss's words: "You have killed the pig! Your tremendous duties on rags, shoddy and mungo have prevented importation and the infusion of fresh blood. You go on grinding over and over and over again the same old limited stock of material. I tell you, you are in-breeding. And your rags—what are they? Cotton and nothing but cotton."

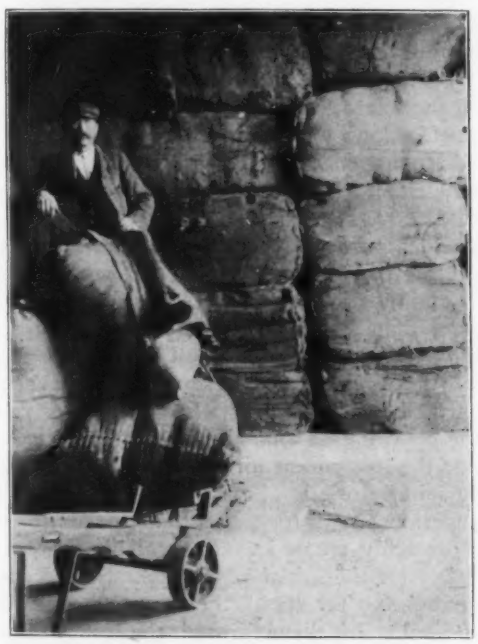
Large samples brought in proved the words. Quotations proved them further. "Silk mixtures" of home and continental production fetch 5 to 7 cents a pound; the same class of American—much of the "wool" and most of the "silk" being cotton—fetch 2 to 3 1/2 cents and rarely 4 cents. Of American "worsteds" the price of 50 bales seen was 1 3/4 to 2 cents. One hardly dares to put the rags into the machines for fear of fire. And misguided Continentals who have mixed

THE GIRLS WHO SORT THE RAGS.

in with their woolens a proportion of the American material that was going so cheap are rewarded by finding the mixture unsalable despite attempts spreading over many months. The trick was immediately detected. Alone among wealthy and highly-civilized countries, America furnishes thor-

oughly unsatisfactory rags, of which some seen in Dewsbury were too poor even for making rag-rugs, for which purpose material fetches 1/2 cent a pound.

Part of the foolishness of the Canadian agitators consists in their omission to reckon with the system of collecting rags. The system is substantially the same in all countries and a better one could hardly be devised for automatically causing rags to reveal their bacterial mischiefs before ever coming within sight of a textile mill. Old clothes



AMERICAN RAGS AT BATLEY.

are almost universally objects of barter. They are traded by housewives for crockery, hardware, greengrocery, toy baloons and other things for children. The collector thrusts them beneath his cart and sells them as they stand to a local dealer in the nearest town. He in turn roughly sorts them, taking out old curtains which may serve for engine-waste and separating rags that are palpably fit only for paper or destruction. These pass to a dealer in a larger town who draws from a large area. He rips out linings and classifies materials as to quality, color and condition with a view to obtaining for them the fullest market value. The material may or may not pass thereafter to a dealer who grades and bulks the rags of several countries. At any rate the rags have been through four sets of hands and have had ample opportunity to betray their harmfulness before the manufacturer touches them.

Rags are safe! Recount to anybody in Dewsbury, Batley and district the nonsense that has been said and written and see the pitying, quizzical look you get. But before proceeding to do that, attend one of the auction sales such as are held weekly. The buyers present have no fears or misgivings, to judge by the way they plunge into the middles of bales. They lounge in knots in a long whitewashed roof-lit warehouse of which the whole floor is covered with bales standing on end. The catalogue in hand shows that a couple of hundred lots of mungo rags and as many more of "softs" are offering. The former are of mill cloth principally; the latter include stockings, shawls, blankets, flannels, oil bags and miscellaneous soft cloths. The auctioneer moves and stands on the tops of the bales while the buyers smoke or munch chocolate and apples bought from a privileged street-vendor and endeavor to look as if they had no thought of buying.

In his loud voice the burly auctioneer cries "Lot 234, 5 bales blue and black serges . . . blue and black serges, gentlemen, nice blue and black serges."

Mr. Buyers industriously avoid notice of what they hear. The seller roars, "blue and black serges" in tones of brass. Startled and then tempted by an entreaty to "start 'em low enough," somebody ventures on a bid of "Ten." Once begun there must be no delay. The goods are going, going, going all the time until the hammer falls on the bid of "Twelve" (shillings per hundredweight) and the interest turns to a bale of blue lamas or a warmly recommended little lot of red and scarlet flannel from Holland.

The sale being now over for the day it is permissible to inquire of some of those in attendance what they think of the salubrity of their trade?

"Isn't so mich wrang wi' me, is there?"

one said, "and I've been amang it 45 years . . ."

"Tell me," said another, "where they're bahn to find onybody healthier lookin' than thease rag-pickers."

Says a third: "I've been brought oop in it and mi father were in it and we've employed 40 to 50 women a lump aboon forty year. And I've never knawn one o' ours have ought wrang wi' her at came aht o' t' rags. Happen a companion nah and agean; but they don't get fleas nobbut i' summer; and they'd ha' them choose how. As for a fever, measles, smallpox, chickenpox, cholera or ought o' that—there's never no such thing been 'eard on yet. T' first is to come."

These individual testimonies which can be gathered in scores by anyone of the pertinent are all to the effect that rags are safe. What do the doctors say? Says Dr. Halliwell, Medical officer of Health for Dewsbury: "It is perfectly true that no epidemic disease has ever been traced to rags." Or take the word of Dr. Clements, Medical Officer of Health for Batley: "The town is practically without industrial disease. We are far freer from industrial ailments than towns like Bradford where rags are not worked at all, but only wool." The medical statements are direct enough, but they can be reinforced. For instance there are the words of H. E. Whitaker, Registrar of Births and Deaths at Batley: "In the whole of my 23 years' experience as registrar I have never registered or known of a death from any zymotic disease among the rag-workers." One might quote the 32 years' Town Council experience at Dewsbury of F. W. Reuss to the effect that never yet has any case of infectious disease been traced to rags.

If more is wanted refer to the expenditure of last year on Contagious Diseases Account by the Batley Corporation. The sum was under $19, of which $14 went in advertising. On the Infectious Diseases Hospital (cost $14,000) the whole outlay was under $400. The death rate of Batley (30,000 population) was 18.1 per 1,000 in 1907 and 18.3 in 1906. Dewsbury (28,000 population) has a mean death rate also of 18 and in the adjoining town of Ossett in which 92 out of a total of 143 workshops are devoted to working rags has a five-year average of 17. Rags are safe, for the death rates in no significant way differ from those of cotton, wool or other densely populated manufacturing towns. For example, mortality in Batley and Dewsbury is as nearly as may be identical with that of Oldham, where only cotton is spun.

All personal and all statistical evidence goes to vindicate the innocuousness of the rag and authorities outside the trade are as unable as those inside to bring home any charge of guilt. It was in 1894 that the Dresden Conference, which was attended by Government experts representing all the leading countries, met to consider evidence. Had they been dissatisfied the Government of the world would not improbably have put prohibitions upon the traffic in rags. But what happened? The Conference was unable to find that infection ever had been carried by rags and had to report that the same could not be said of wool. There has been no talk of concerted prohibition since.

The position therefore is that rags are safer than wool. Both are coats of animals; in one case of sheep and in the other of man. We know which is the more closely shepherded. Why need there be any wonder that the coat of that animal proves itself in practice the less potent for harm? Let the truth be seized firmly. The fact established by the experience of three generations needs to be thoroughly taken in. In hygienic respects rags have the initial advantage. Sorted and graded as they stand, they are the superior of wool. Put them through the same round of processes as wool and they retain their superiority still. Put them through more drastic processes of sterilization and ask the shuddering victim of germ-fright which he would prefer to wear then.

Thanks to G. Hirst of Batley, one may outline now the processes rags undergo in Britannia Mills, Birstall. You go there on the street-car, away through Dewsbury, Batley Carr, Batley—past the great mills of G. & J. Stubley, J. T. & J. Taylor and many more—out through Carlinghow to the chief works of the Extract Wool & Merino Company. A lady factory inspector has been telling the medical officer how favorably the airiness and cleanliness of the sheds in the

district had impressed her. None is cleaner and brighter than those controlled by Alderman George Hirst, who has a large circle of acquaintances in America. Mr. Hirst shares the general Batley opinion that the Canadian agitators had best be left to stew in their own juice, cooled only by the discredit arising out of their own absurdities.

However, like a brisk man, he whisks you around his perfectly appointed works, showing here an electrical stop-motion to the engine or there an overhead run-way with which a child might manipulate bales. The first call is in the drying room, where a few tons of miscellaneous pants, coats and waistcoats, just as they left the wearer, are being rendered bone-dry by steam heat. The expulsion of moisture is the preliminary to the voidance of dust. The clothes go hot into the "duster," in which you see them whirling on circular forks, an air-blast sweeping them the while. The rags fall out piecemeal with the dust of the farm or the factory taken from them. They are, in a way, clean. All cotton thread being carefully cut from them, the rags may not need to be carbonized. Ordinarily, carbonizing is necessary and in the adjoining room are the four bricked-in tanks in which carbonizing is done by the "dry" process. The rags get the benefit of a mean time of five hours in a solution of acid at an even heat. They are heated to dryness subsequently and the cotton crumbles to dust.

Alternately, the material is washed precisely as wool is washed in long trough and fork machines and is dried in the hydro-extractor. A proportion of the rags are dyed in perforated copper cages, with a copper perforated tube in the middle. Packed and screwed tight the cage is lowered into the sunk dye-vessel. The strong acid liquor being added the hidden centrifugal pump gets to work and the machinery makes hay of the imagined microbes for something like an hour.

The pulling machines, neat and silent, in little stalls like so many cows, are reducing the fastidiously clean and sterile rag to fiber. The proprietor is open to wager with you. Do what you will you shall not cause that shoddy or that mungo to lose more than 5 per cent.; the exact proportion of oil (at $125 a ton) that has been added. The offer is repeated in the card-room, where a faultless sliver of long blue pulled worsted, free from dust, dirt, cotton and any contamination and fit for the best blue suits that could be desired, is rolling steadily on the lapper of one machine. You could dress wounds with it—saving the dyestuff—and be no worse. To the merino made from stockings which reels off another machine there is 20 per cent. of "SP" Australian wool worth 40 cents a pound added. Dyed to delicate shades the mixture enters into the finest blankets.

Aloft, you find the "mateys," Irish girls all, in white smock-skirts with colored kerchiefs for the head. They grade and pick rags under sanitary conditions incomparably better than one finds in schoolrooms. By the rule of the mill they must bathe once a week and the bathrooms form one side of their department. They are enjoined to wash before meals. They have a fan for ventilation, brilliant light, abundant air-space and comfortable warmth. Not merely good, their health is excellent. Their situation is to be envied by girls in nine out of ten works in any trade. Go where you will among industrial premises of all kinds, few will be found in which conditions are one-half as satisfying as in a well-kept shoddy mill. In vain you search for "filth, disease, garbage, rubbish, cobwebs," or any of the other items of the Canadian indictment. In truth they are not there. They have been eliminated at the beginning, if ever they had an existence at all.

Classified, carbonized, scoured, dyed and purified as they are, the rags are yet only on the threshold of manufacture. They are to be carded and spun, woven and scoured with alkali; in brief, to be subjected to all that treatment that is held to be a sufficient sanitary safeguard in the case of the more perilous material which goes by the name of pure wool. Safe in the raw state, rags are trebly safe in the form of reconstituted cloth, alike to those who make and those who wear it. All word to the contrary is moonshine and distorted nonsense. Of the blessings reworked rags confer in the shape of warmth and longevity the agitator does not dare to speak. But if on the whole the advantages

of using new wool utterly out-balance such disadvantages as—for example—the propagation of anthrax, it can unanswerably be urged that the inestimable value of the liberty to use rags outweighs every unreal consideration that could conceivably be brought against them. We cannot all keep ourselves warm continually with mere indignation. There is not in all the world sufficient new wool brought forth annually to give one person in six even decent covering. Force of circumstance compels the re-employment of rags and the same force compels the admission—with whatever reluctance—that reconstituted cloth in every sanitary sense is indisputably pure.

THE DRAPER EXHIBITION WEAVE ROOM.

The illustration shows the exhibition weave room at the works of the Draper Co., Hopedale, Mass. The looms are equipped with warp and filling and in a condition to be operated at short notice. The work includes a great variety of weaves and all the standard devices attached to the various types of looms made by the Draper Co., among them being the following:

No. 1. 32-inch E Model Loom. Goods, cotton worsted; 50 sley, 42 picks; cotton warp, No. 26 two ply worsted filling.

No. 2. 32-inch E Model Loom. Goods, ginghams (stripes); 80 sley, 88 picks; No. 50 warp, No. 56 filling.

No. 3. 36-inch E Model Loom. Goods, filling sateen; 64 sley, 130 picks; No. 28 warp, No. 36 filling.

No. 4. 32-inch H Model Loom. Goods, corduroy; 48 sley, 300 picks; No. 26 warp three ply, No. 36 filling.

No. 5. 40-inch E Model Loom. Goods, fine lawns; 88 sley, 92 picks; No. 80 warp, No. 120 cop filling.

No. 6. 34-inch K Model Loom, with 20 harness dobby. Cloth, figured dress goods. 80 sley, 84 picks; No. 50 colored warp, No. 56 filling.

No. 7. 40-inch E Model Loom. Goods, sheetings; 80 sley, 92 picks; No. 28 warp, No. 36 filling.

No. 8. 28-inch E Model Loom. Goods, standard print cloth; 64 sley, 64 picks; No. 28 warp, No. 36 filling.

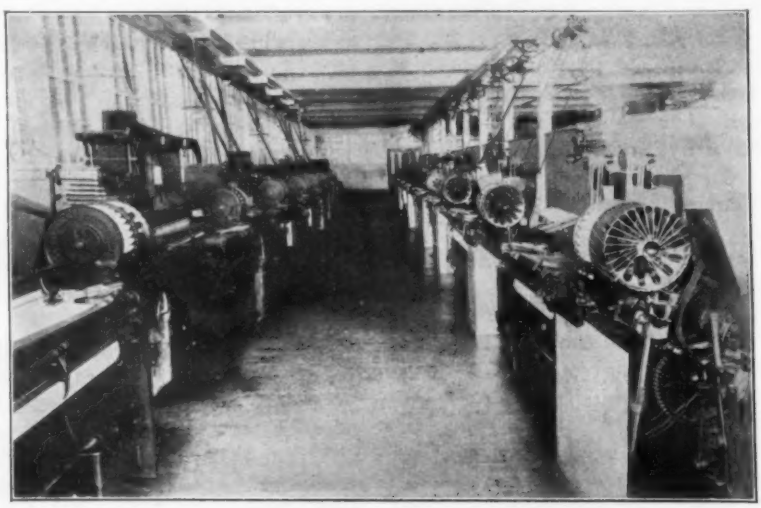
No. 9. 64-inch D Model Loom. Cloth, worsted dress goods; 42 sley, 48 picks; No. 28 two ply warp, No. 28 filling.

No. 10. 40-inch Special D Model Loom. Goods, light duck; 50 sley, 40 picks; No. 10 two ply warp, No. 14 two ply filling.

No. 11. 90-inch L Model Loom. Goods, wide sheetings; 64 sley, 72 picks; No. 22 warp, No. 21 filling.

No. 13. 32-inch Special E Model Loom. Goods, pillow tubing; 64 sley, 76 picks; No. 28 warp, No. 36 filling.

No. 14. 32-inch K Model Loom. Goods, fine lawns; 88 sley, 80 picks; No. 60 warp, No. 85 cop filling.



THE DRAPER EXHIBITION WEAVE ROOM.

No. 15. 28-inch Special E Model Loom. Seamless grain bags; 25 sley, 22 picks; No. 7 two ply warp, No. 31 two ply filling.

The Draper Co. extends a cordial invitation to all interested in the Northrop loom to visit their works and would appreciate it if visitors would notify them a day or two in advance.

CORRESPONDENCE AND NOTES

Upon Textile Topics At Home and Abroad.

RIBBON WEAVING.

BY OTTO BOTH.

(Translated from Die Bandweberei.)

(Continued from December.)

BASKET OR PANAMA WEAVES.

These are formed as in the case of filling ribs, by drawing in several successive warp

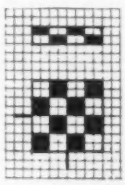


FIG. 26.

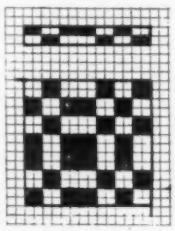


FIG. 27.

threads on one shaft, then several successive warp threads on another shaft. These two shafts are then operated in opposite order, that is when one is down the other is up, several filling threads being woven in

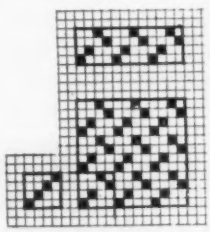


FIG. 28.

the same shed. Fig. 26 is a 4-leaf basket weave. Fig. 27 is a 14-leaf basket pattern, woven 2 up 2 down, 4 up 2 down, 2 up 2 down.

BROKEN TWILLS.

These are formed by changing the order of either warp or filling threads in a straight twill. The new weaves can in turn be rearranged so as to produce an indefinite number of weave patterns. In ribbon weaving the following kinds of broken twills are in most frequent use.

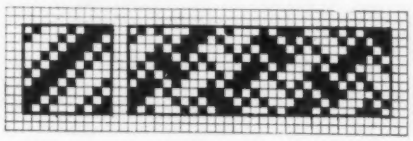


FIG. 29

(a) Cross Twills. In these twills, as the name indicates, the threads are arranged so as to break the twill into the form of a cross. Fig. 28 shows a cross twill formed from a 4-leaf filling twill, 1 up 3 down, by rearranging

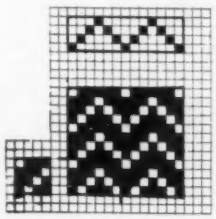


FIG. 30.

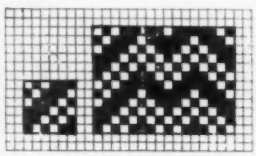


FIG. 31.

the threads in the following order: 1, 2, 4, 3. Fig. 29 is a cross twill obtained by rearranging the threads of the 10-leaf twill, shown at the left, in the following order: 1, 2, 3, 6, 5, 4, 7, 8, 9, 2, 1, 10, 3, 4, 5, 8, 7, 6, 9, 10, 1, 4, 3 2, 5, 6, 7, 10, 9, 8.

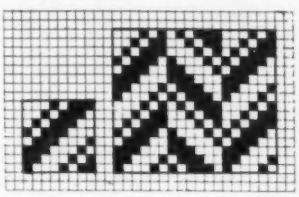


FIG. 32.

(b) Herring-bone Twills. These are formed by reversing a twill at intervals in

such a way as to make the two twills meet at a point and produce an effect resembling a fish bone. Fig. 30 shows a herring-bone weave derived from a 4-leaf warp twill, 1 down and 3 up, by rearranging the warp

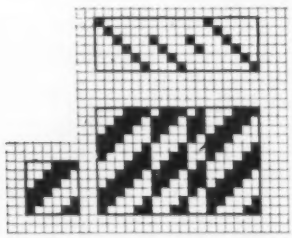


FIG. 33.

threads in the following order: 1, 2, 3, 4, 3, 2. Fig. 31 is a herring-bone weave derived from a 6-leaf twill shown at the left.

(c) Broken Twills. These twills produce

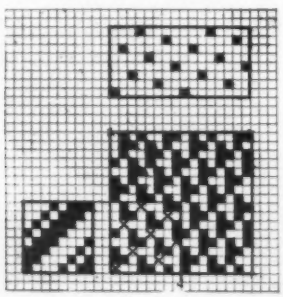


FIG. 34.

an effect similar to that of the herring-bone weaves. A twill or diagonal is run in one direction over a certain number of threads

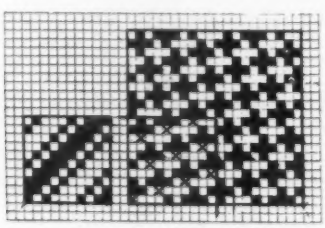


FIG. 35.

and then reversed for a certain distance. At the point where the twill is reversed, the two adjacent threads, one from each twill, interlace in the opposite order, one being down when the other is up, as shown at Fig. 32. This is a broken twill derived from the 8-leaf twill shown at the left. Broken twills can also be made with the twill running in only one direction. Fig. 33 shows a weave of this kind derived from the twill at the left by

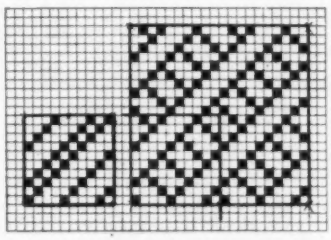


FIG. 36.

cross-drawing the warp threads, as shown by the drawing in draft at the top. Fig. 34 shows an 8-leaf twill broken in satin order, as shown by the drawing in draft. Fig. 35

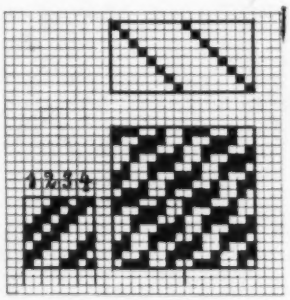


FIG. 37.

shows another twill broken in satin order. The order in which twills may be broken can be varied indefinitely. Fig. 36 shows a 10-leaf twill at the left broken by arranging the threads in the following order: 1, 8, 3,

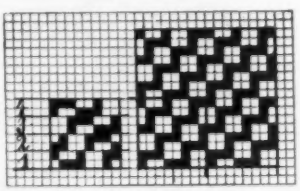


FIG. 38.

10, 5, 2, 7, 4, 9, 6. Fig. 37 shows an effect produced by dividing an 8-leaf twill into 4 groups of 2 threads each and then rearranging these groups in the following order: 4, 3, 2, 1.

Fig. 38 shows an effect obtained by dividing the filling threads of an 8-leaf twill into groups of 2 picks each and then arranging these groups in the following order: 4, 3, 2,

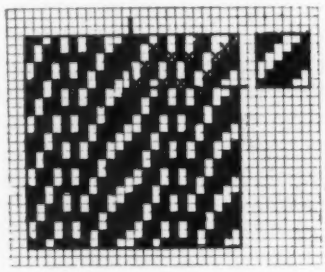


FIG. 39.

1. Fig. 39 is a serpentine effect obtained by rearranging the threads of a 6-leaf twill.

SHADED WEAVES.

These are derived chiefly from a filling twill or satin weave which is divided into groups of threads. The first group is left as

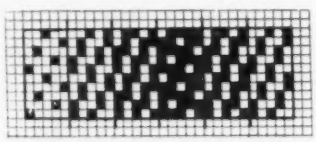


FIG. 40.

in the original weave. The second group is changed by the insertion of one riser in the weaves on each thread. Two risers are inserted in the third group so that the filling weave is gradually converted into a warp weave producing a shaded effect, as shown at Fig. 40.

(To be continued.)

ABSORBENT COTTON.

Absorbent cotton has in recent years been used otherwise than for medical purposes, and is now in requisition industrially for the preparation of the different esters of cellulose and of artificial silk. In the varied chemical transformations that cellulose must undergo before finally giving solutions which may serve for the manufacture of the several artificial silks (Chardonnet silk, solution of nitro-cellulose in alcoholic ether; Glanzstoff, solution of cellulose or hydrate of cellulose in Schweitzer's reagent; viscose silk, aqueous solution of thio-carbonate of cellulose, the result of the combination of alkali cellulose with carbon disulphide) it is absolutely necessary to use material that not only wets out readily but that submits easily and regularly to impregnation with the solutions employed.

The two conditions—purity of the cellulose and readiness with which it wets out—while being corelated, may be attained separately. Dyers know well that without removing the impurities cotton quickly acquires the property of absorbing liquids by treatment with sulphoricinate, whereas cotton thoroughly purified is always hydrophile in character. The penetration of cotton by liquid reagents is a complicated operation, and without doubt can only take place after the expulsion of the air held in the tubes of the fiber. The twisted form of the cotton fiber makes the central canal without outlet, so that the air cannot be expelled at the obstructed extremities, but necessarily through the cell walls. On the other hand, the penetration of the cell substance is accompanied strongly by osmotic phenomena, endosmose for the water or the reagent penetrating the cotton and exosmose for the air originally held in the dried fibers.

These phenomena of diffusion can only take place when the cell wall is porous, and as the natural impurities of the cotton are composed for the most part of resinous bodies, should in a way render the fiber impermeable and form an obstacle to the production of osmotic phenomena and thus to penetration. It is thus seen that both for medical purposes and for the special industrial usages enumerated the purification of cotton is as important a feature of its course of treatment as is that of being rendered hydrophile.

As far as cotton for medical purposes is concerned, it has to be remembered that the impurities natural to cotton consist of organic matters, which offer much less resistance to various reagents and are much more susceptible of giving rise to fermentation products, and in consequence more prone to putrefy than cellulose characterized by negative chemical properties. Therefore the degree of purity of cellulose measures the

degree of aseptic power of absorbent cotton and is the essential condition of its hygienic character. In the same way the preparation of the esters and solutions of cellulose is fraught with many delicate reactions subject to complications not clearly defined, which might be deranged by the presence of a relatively feeble quantity of foreign matter. Under these circumstances it becomes necessary to have recourse to pure reagents and equally to cellulose as pure as it may possibly be obtained.

Imperfections in the boiling-out operations may result in only a partial expulsion of the air from the fibers, and this, in spite of all ulterior precautions, causes the introduction of a certain quantity of air into the cellulosic solutions, the presence of which may often account for the resulting cohesion of fibers of artificial silk. Osmotic phenomena are influenced by different factors which call for consideration. Naturally enough, the rate of penetration of salt solutions through the cell wall of the fiber should be slower than that of pure water; the rate of diffusion depends equally on the density and the viscosity of the solutions employed, so that it seems fair to admit, in extending the law of Graham, that "under the same pressure, liquids pass through the same wall at speeds in inverse ratio to the square root of their density."

The preparation of absorbent cotton should be simple enough when there is only from 5 to 6 per cent. of impurities to remove, but in boiling and bleaching operations as carried out there is risk in introducing others, besides interfering with the strength of the fiber. Boiling-out operations are usually accomplished with alkalies in a kier under a pressure of 2 to 3 atmospheres, which gives temperature corresponding to from 250° to 270° F. Generally a solution of caustic soda (2° to 4° B.) is employed, and boiling continued for from 5 to 10 hours. Bleaching is carried out as ordinarily for cotton, though it would undoubtedly be an advantage to use the more soluble hypochlorite of soda, with which the formation of difficulty eliminated insoluble lime salts is not to be feared.—Revue Generale des Matieres Colorantes.

ENGLISH NOTES.

(By Our Special Correspondent.)

It is a universal regret that the seven weeks' stoppage of 40 million cotton spindles and an unknown quantity of looms has done so little to improve the demand for manufactured goods. So far as the results of stoppage are measurable they show that export has been decreased by 16 million pounds of yarn and 203 million yards of cloth during October and November. Some decrease was to have been expected in any case and some due to the strike may yet have to appear. Large in one sense, the decreases look small in another for 16 is not much out of 241 and 203 is a trifle beside 6,298. The larger figures, be it understood, represent the number of million pounds and million yards of cotton yarn and cloth shipped abroad from England last year. It may quite well be that the Eastern market still have a stomachful of Lancashire goods, as is reported daily to be the case.

* * *

Cotton spinners have had sarcastic comments to bear from customers who have found themselves able to buy yarn at 6 cents less than at a time last year when raw cotton was only 1 cent dearer. Buyers of warps for woolen weaving are now biding their turn and operating gently. Some of them are relying on finding a large carry-over from this season. To win a big crop next year they see no limit to the lowness of cotton prices and they want part of that 5 cents back which went last year into Lancashire dividends.

* * *

The compulsory working of patents clause continues to bring new industries to England. The Polack Tyre Co., a German enterprise employing $375,000 of private capital in its new branch, is settling near London to make solid and pneumatic tires and rubber goods generally. The first of a series of works in which room and power can be rented by foreign patentees is under construction in Manchester. The time is not an auspicious one for large outlays, but there are said to be developments pending in the automobile line.

A maker of 32 oz. friezes in Yorkshire, whose price is slightly less than the parity of 40 cents, admits to one unusual economy. He dyes them in the fulling machine, in his own words, pounding the liquor into them. The material that goes into the goods is governed by price. If low silk waste is cheap enough he adds that to the cotton, taking care always the woolen he uses is stuff with some "tear" which will have a good breaking strain after the milling. Striking enough as an instance of what is possible under good management, this is not absolutely the limit which is reached by 27 inch cotton warp frieze at 2 3/4d (say 5 1/2c) a yard.

* * *

Of both English and French dress goods for 1909 a great quantity have been dyed to "beech" shade. A pattern of it may be inspected at the Textile World Record office. The color is that of the copper-beech, a shade between red and brown that is quite free from muddiness. It improves greatly upon the wine shade it replaces. The color has greatly taken the eye of woolen and worsted designers.

* * *

As an example of what false scares have meant to the rag trade take the instance of $4,000 worth of new clippings embarked for England at Marseilles. Cholera broke out in the port as they were leaving and these cloths which had never been worn and had not been collected in the smitten area were quarantined at Hull. They were "rags," and that was enough for officialdom. The bales were put there and put here, guarded constantly, once put into barges to be towed out and sunk at sea and all the while owners and officials wrangled. The release was effected after many months and by that time the charges upon them amounted to $900! Imagine with what grace this was paid by one who knew that no single case of infection had ever been traced even to worn rags.

* * *

The tendency of water to creep by capillary attraction up the inside of a rubbered waterproof garment is well known. To prevent "creeping" and at the same time to give the fabric a treatment not deleterious to rubber the following is applied in good English practice: The cloth (union or cotton) is mordanted with acetic of alumina (strength to 2° Tw.) and tannic acid 4 per cent. It is rendered thus relatively waterproof apart from subsequent rubberizing.

It is recommended to make the acetate oneself, employing pure alum sulphate and pure, white lead acetate. The alum should be brought under an absolute guarantee of its freedom from iron, as a slight trace of this will cause stains and dull shades and heavy debits. Besides iron, commercial alum contains a proportion of sulphate of potash which serves no purpose.

* * *

For a long time Sir Titus Salt was credited with being the first to spin alpaca. Charles Dickens has described how Salt saw the stuff in a Liverpool warehouse in 1836, carried a sample home in his handkerchief and after scouring and combing it personally, finally spun it into strong and lustrous yarn. Salt was anticipated by Outram of Greetland who produced an alpaca thread in 1830, but did not proceed with the material. Outram seems to have been forestalled in France. In Arthur Young's "Travels" Professor Barker has unearthed a reference to alpaca spinning in France in 1789. It rests now to see whether alpaca had not perchance been home-spun in Peru by the Incas.

* * *

A Government return comparing the years 1906-1907 does not leave the Colonial cotton growing enthusiasts with anything to brag about. In terms of 500 lb. bales it shows the imperial production to have gone down from 3,974,093 bales in the one year to 2,463,634 in the next. An abnormally favorable season in India in 1906 is given as some explanation of the decline. Allowing for the difference in the Indian crop it would appear that other British colonies provided 18,434 bales (1907) in place of 17,533 in 1906. The increase is thus a bagatelle of 900 bales, roughly 5 per cent. Thus does the British Empire prepare to feed the spindles of a Lancashire which even this year has been absorbing cotton at a rate of 57,400 bales a week.

The heavy cost of distributing textiles in America, stated to be 50 per cent. of their ultimate price by a member of the National Cotton Manufacturers' Association, has provoked comparison with English costs. In the regular course, cloth for domestic consumption passes through two ownerships—wholesale and retail. To cover all expenses the former needs a general average of 20 per cent. on mill cost. The shopkeeper reckons upon an average of 33 per cent. on the wholesale cost and sells some things for more and some for less. Where mixed dress fabrics sold in the piece are concerned the elements of cost in the price paid by the consumer appear in this wise:

Fiber	21.25 per cent.
Processes	41.25 per cent.
Wholesale	12.50 per cent.
Retail	25. per cent.

Readjustments are needed in cases where fiber bears a higher or lower ratio to manufacturing expenses and where made-up garments are sold. In a general way it can be said with some assurance that selling expenses do not exceed 37 1/2 per cent. of the retail price as an average, whatever their rate in particular cases. Shorter distances and denser populations help us to be more economical than America.

* * *

For the first time in history England is to have a census of its production taken. The schedules have been carefully compiled in consultation with representative committees of manufacturers and the results are awaited with interest. The inquiry will bring out the weight value of raw textile materials treated and the value of work done, be it by commission-manufacturers or the owners of the goods. The net selling values will be rendered separately of cottons, woolens and worsteds, linens, knit goods, silks and all other goods. The indignation of manufacturers who say they will need a special census clerk has been soothed by tactful negotiations through the Chambers of Commerce.

* * *

The positions of the men behind the new reform advocated for the cotton trade add weight to their proposals. F. R. McConnell is a member of a great firm that has been spinning fine counts since 1791. A. A. Haworth is a Manchester M. P. and connected with R. Haworth & Sons, owners of four mills. They have the support of T. R. Ellison and of the British Weights and Measures Association and they ask for the banishment from the trade of the gross tons (2,240 lbs.), hundredweight (112 lbs.), quarters (28 lbs.), and for use of pounds as the single denominator of weights. Raw cotton is almost universally denoted in pounds and now the piece and yarn trade is asked to come into line.

This measure is the necessary preliminary to the further reform advocated—the abolition of vulgar fractions in quoting for cloth and yarn. Cotton is bought by pence and decimals of a penny and cotton goods could more conveniently be quoted thus. Already the mill costings are made in decimals in the most progressive enterprises and the promoters do not intend to argue about the advantages of the further use of fine fractions. On the other hand they are taking steps to see how many firms will consent to quote in decimals with a view to putting their system forthwith into operation.

* * *

Chambers of Commerce in England have a semi-official status. Confidential intelligence is circulated through them by the Government and from them Government Departments ascertain the opinions of traders on commercial matters. They are the recognized avenues of approach to manufacturers. The Huddersfield Chamber has been asked by the Board of Trade (British Government Department) to formulate definite proposals for the revision of the American tariff for transmission to the Embassy at Washington. The Chamber proposes the abolition of specific duties on woolens and the reduction of the rates ad valorem; in fine a return to the 1883 tariff. To all but woolens and worsteds, of which the price is a minor consideration, the present duties are prohibitory and Huddersfield observes that a considerable revenue might accrue to Uncle Sam from the admission of cheaper and heavier woolens.

The Chamber offers the natural channel for such requests as have been made to individuals in Birmingham by the Ways and Means Committee. Requests officially presented are referred to appropriate committees when they are not ordered to lie upon the table. And a startling request at least obtains the benefit of joint consideration by the parties interested.

* * *

The foreign holder of a British patent has now his first judicial warning. Hatschek's 1900 patents for thin cement slab making have been revoked. He pleaded (a) that manufacture could not be licensed in the United Kingdom without breaking faith with a Belgian company which supplies these markets; (b) that to manufacture in England would raise the cost; (c) that he had tried unsuccessfully to find a licensee in Great Britain.

The applicant replied that the goods could be commercially made here and that he could find persons to undertake the manufacture. The Comptroller ordered the patentee to pay costs ($236). This object lesson is relied on to quicken the decisions of other foreign patentees to begin manufacture. The law means business!

* * *

An addition should be made to the statement (November English Notes) that the green-stain test for the fastness of khaki is regarded as conclusive by the Manchester Testing House. The methods of that home of science are not so narrow. Tests with hot water, soap, soda, peroxide, lime, light, pure water and so forth—each designated to prove the fastness of the sample in a particular respect—are applied as may be demanded by the occasion. The sample is regarded then as "fast" to the severe conditions imposed. It is a trade delusion that any colors are fast to infinity.

There are about 20,000,000 sheep in France producing 95,000,000 pounds of greasy wool annually, and as these fleeces are figured to give a yield of 39 per cent. washed wool, this amount produces some 37,000,000 pounds pure wool.

PURE AIR IN FACTORIES.

Editor Textile World Record:

In view of the recent agitation resulting from laws passed in England and some states in this country, forbidding the use of impure water for moistening the air in mills and factories, it is interesting to note the action by which impurities may be freed within the atmosphere to float and possibly transfer disease.

Each drop of water liberated in the form of spray is a sample of the water from which the spray is supplied. These drops or particles might therefore carry impurities such as exist in the water supply. Each drop, therefore, gives off vapor from its surface and is gradually reduced in size until whatever dust, bacteria or other foreign particles were contained within it have been left dry and floating in the atmosphere. The evaporated water is chemically pure, but the residue of the drop, which does not consist of water, but foreign matter, is unchanged by evaporation.

The drainage water from such a spray, consisting of the drops which were too heavy to evaporate before falling into the drain pan, would naturally contain the same impurities as the original source of the water, increased to some extent by whatever dust particles were washed out of the air by contact with this portion of the spray. If the drains are piped back to the water supply it is evident that these impurities will remain in the water.

The manufacturers of the evaporating type of humidifiers claim that whatever bacteria or other foreign particles may be in the water supply are held in solution in the water flowing over the evaporating surfaces. The increase in atmospheric humidity is derived from the evaporation from these surfaces, and as this evaporation consists of distilled water only, all foreign particles are left imprisoned on the wet surfaces. The drainage water from such a device would not cause the spread of foreign matter in the atmosphre, because on every following passage the impurities are just as securely held in solution on the evaporating surfaces.

S. H. Bunnell.

WOOL CARDING AND CARDING MACHINERY IN EUROPE.

BY GUNNAR NILSSEN, Aalgaard pr Stavanger, Norway.

(Continued from December.)

A set of cards as described in my last article will supply 1,000 to 1,200 mule spindles. The number of spindles depends of course to a large extent on the speed of the mules and draft of the roving.

Suppose we have to spin a 6 rim filling yarn for ladies' costume cloth. Carding the roving to four run for the six run yarn, the set of cards will produce 400 pounds or more in the ten hours. Speed of condensing card is 180 revolutions per minute, and 180 good ends are taken from the condenser, the card being 70 inches wide.

The cross band feed already described is chiefly useful for long wools, as it saves the staple of the wool, besides being a good working feed equally well adapted for all kinds of stock. When, however, difficult mixtures or blends of stock requiring a very thorough carding and mixing or intermingling of fibers have to be worked, the fibers should be cross fed to the second breaker. A cross feed for the condensing card is not used except on two card sets. For this purpose a narrow band feed is used. The film of wool combed from the doffer by a fly comb is gathered together in the middle, passes through a funnel of greater or less width, around press rollers, and is transported to the next card by an apron. The band is either doubled straight across the feed table of the second card or laid diagonally across the table, the latter method being generally preferred. This gives a more even feed, besides delivering the fibers to the licker-in at an angle.

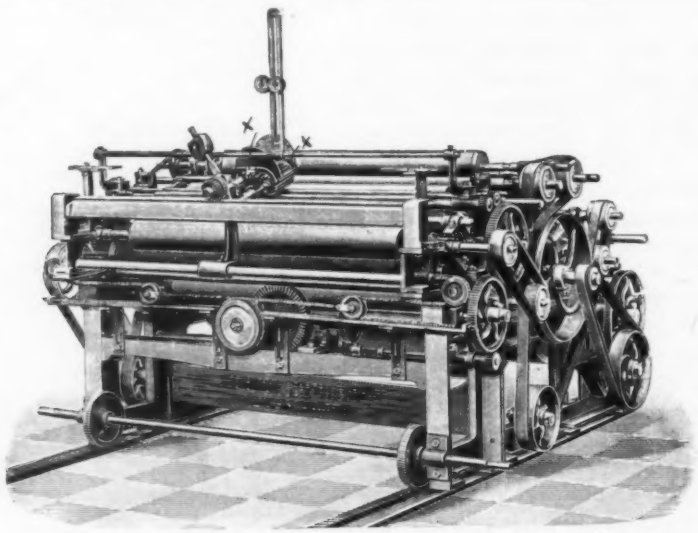


FIG. 14.

Fig. 14 shows a different type of band feed. The band is formed and carried across from first breaker in the usual manner. A breast is fixed to the second breaker to open up and equalize the band. The band is carried by fluted rollers, X and X1, forwards and backwards across the card, delivering directly to the lickers-in. A number of rollers and tumblers serve to open and equalize the band before it is passed to the card cylinder. This feed delivers the fibers nearly parallel to the card, and is a good mixer. It can also be worked in connection with a balling machine.

When band feeds are used the single cards form one machine. If one breaks down, the other two also have to be stopped. Stripping and grinding has to be done at one time for the whole set. An automatic

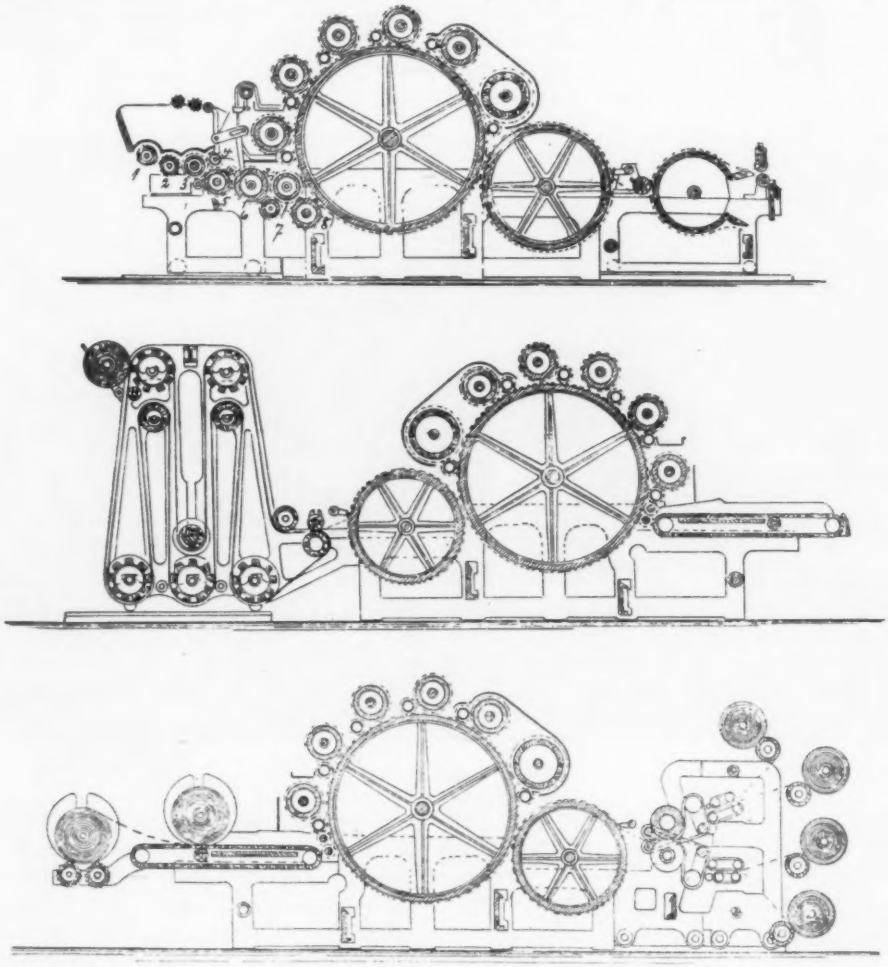
device is provided to start or stop all three cards simultaneously as well as independently, standing at either of the cards.

Automatic band feeds do not make the work any easier for the boss carder. He must understand the cards as well as the stock to be carded, in order to get the roving of the right number without too much trouble. Different lots may show a considerable difference in weight of roving, although the same weights and gears are used. Special attention must be given to the belts, so as to have them in good order and of equal tension. A slipping belt will at once cause irregularities in the yarn.

CARDING COTTON AND WOOL MIXTURES.

The preparation of the cotton and cotton waste hardly comes within the scope of these articles, and I will confine myself to the process of carding.

Figs. 15, 16 and 17 show a set of cards adapted for carding half-wool stock of medium counts. The first breaker has a Bohles feed attached. The bottom of the tray, n, holding the wool, is made up of four rollers, 1, 2, 3 and 4. The roller, 3, clothed with coarse saw tooth wire, carries the wool down to the roller, 5, whence it is passed by rollers, 6, 7 and 8, to the card cylinder. The film from the doffer is rolled on a drum,



FIGS. 15, 16, AND 17.

which automatically breaks the lap at a desired thickness and rolls it on the floor. As the stock is not weighed before entering the first breaker, the weighing is done between first and second breaker, each weighing running through the second breaker separately and constituting a lap on the long lap feed.

A two tiered rubber tape condenser is attached to the condensing card, which indicates that low and medium counts are carded on this set. The hood which covers the last worker and fancy, has been generally discarded on the continent. Carders in some cases prefer to let the fancy run uncovered. The cover now preferred fits the fancy closely, the results being more satisfactory because of the high speed of the machine.

Fig. 18 shows a condensing card of Belgian make. This card is especially adapted for cotton and cotton waste, carding the stock dry. All working parts of the card are covered in. The special features are: Larger diameter of swift, doffer and workers than in Germany. German card construction tends to greater width and higher speeds; the Belgian, to larger diameters. The feed apron is fitted for a double lap feed. The number of workers and strippers, seven of each kind, is very large, and will of course give very thorough carding to the material. The condenser is a so-called steel tape or flat steel spring condenser. The film of wool goes in between the flat steel springs, lying close to the outer rubbing leathers. Between these steel tapes the film is divided into ribbons.

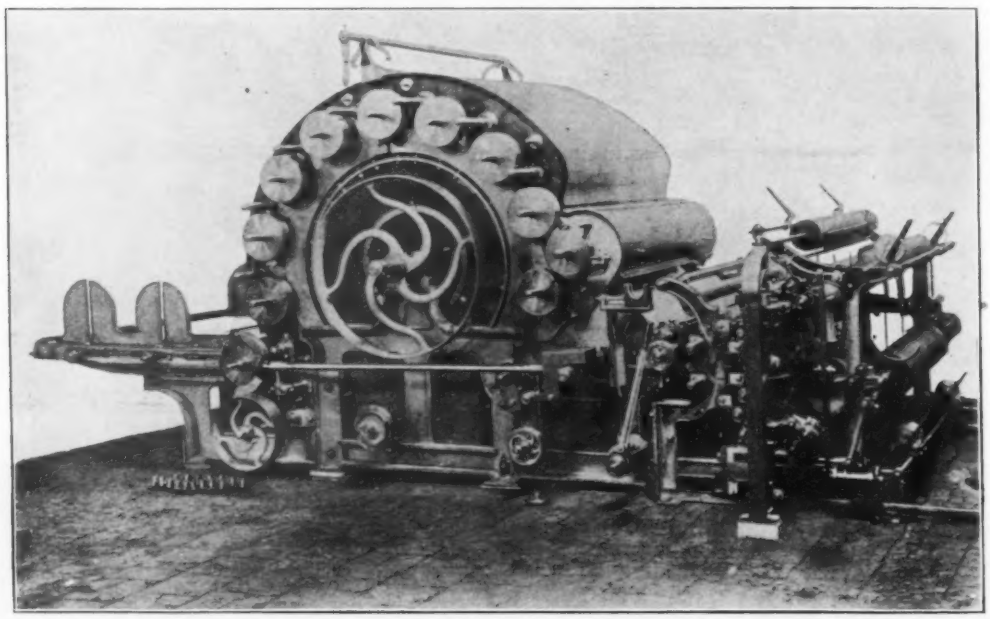


FIG. 18.

A standard set of cards for cotton and cotton waste spinning is shown in Figs. 19, 20 and 21. The first breaker has an automatic feed and a small breast, consisting of two lickers-in and clearing rollers, tumbler taking wool to the cylinder of the breast, one worker and one stripper, angle rollers and two tumblers taking wool to the cylinder of the card. The last named tumblers have clearing knives fixed underneath to remove impurities. All three cards have tin trays—automatically cleaned—to take up impurities dropping from first and second strippers. The four last workers and strippers are covered in by wooden covers, which can be lifted up when the card is stripped. The

fancy is covered in by rollers and concentric covering.

The film of wool taken from the doffer of the first breaker is contracted to a narrow band or ribbon, passes under press rollers to give it more consistency, and is carried over to and doubled on the feed apron of the second breaker in the usual manner. The fibers are cross fed to the second breaker. For short fibers this is satisfactory and gives a more thorough mixture. This card has two lickers-in, a clearing roller and tumbler. The film of wool taken from the doffer, as shown in Fig. 20, is carried by a lattice apron down between rollers and is put in layers on an apron, traveling at nearly right angles to the card.

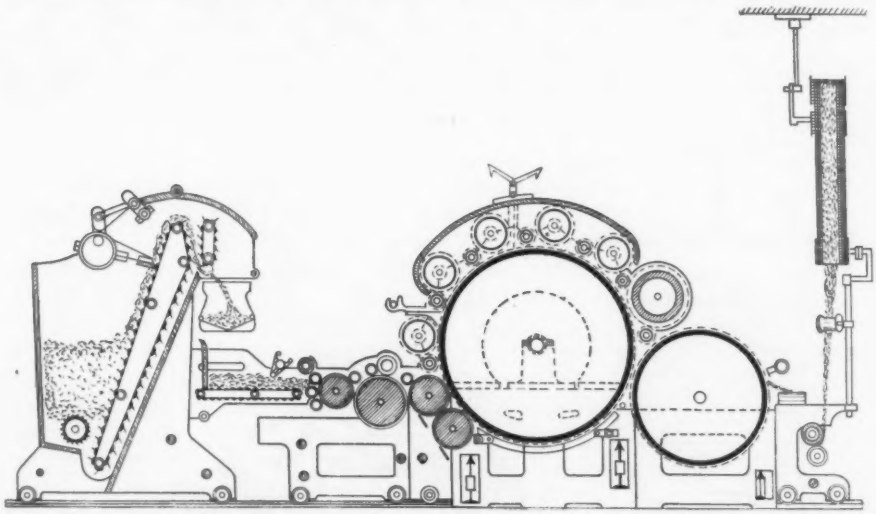


FIG. 19.

This broad band feed differs from the one previously described in that the film is broken into strips and laid on the apron, not doubled. This construction is chiefly used for short stock. The band thus formed is

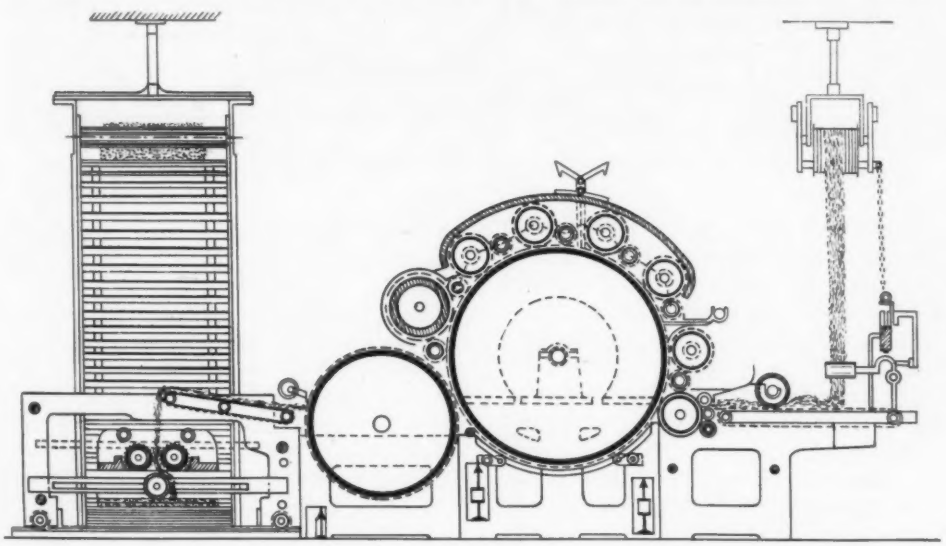


FIG. 20.

taken by lattice aprons, transported to the feed table of the condensing card, where it is doubled, delivering the fibers parallel to the condensing card. The condensing card has two lickers-in only, delivering the wool direct to the cylinder. The wool on entering this card is well straightened out, and two lickers-in will be sufficient for short stock. A tumble might of course also be

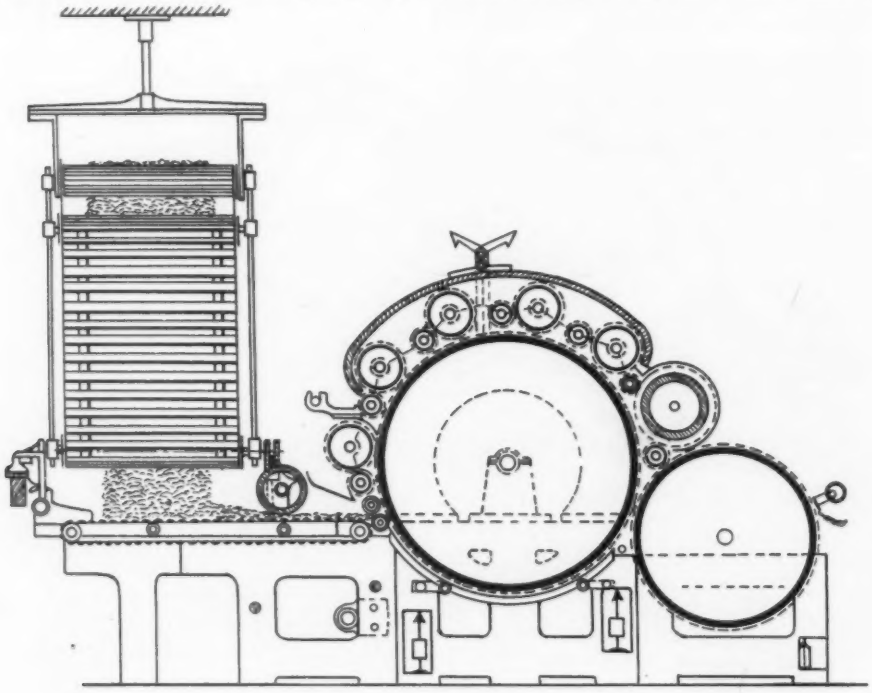


FIG. 21.

used, but this is generally left to individual judgment. A four tiered rubber tape condenser divides into ribbons the film of wool from the doffer. The rubbers are two pairs of leather covered rollers, not leather hose as used on wool.

The diameter of cylinders is 45 inches; of doffers, 31 inches. Note the large diameter of the doffer as compared with the diameter of the cylinder. The cylinders on this set are run at a speed as high as 200 revolutions per minute, when dry cotton waste or cotton is carded. On wool it is not advisable to speed cards so fast as the staple will suffer, and the wool will not be so well carded as by lower speeds. The wire width of the cards rarely if ever exceeds 70 inches on machinery of this description. A set of cards of this width and speed will, if the condenser has a 25/64 inch pitch giving 180 good ends, produce about 450 pounds of six run yarn in ten hours, the roving being carded to four or three and a half run. A set will supply 200 or more mule spindles. While cards for wool have been made wider in order to increase production, the tendency has been to speed up cards for woolen spun cotton.

Cards running at this high speed must be of a good solid construction and exact workmanship. As the cylinders run close to the side castings, and all working parts are covered in, draft and consequently card fly is practically eliminated.

When carding cotton and half wool, great care must be taken in the setting of the cards. The setting of the doffer and fancy is especially important.

The cards must also be kept in good working order. The wire should have a good sharp point, and not be allowed to run too

full. Stripping is no easy work on these cards, especially if oily lots are carded. The fast running fancy packs the dirt tightly into the cylinder. If the fancy is properly set, hardly any fibers should be left in the wire of the cylinder. All cotton batches are mixed on an ordinary mixing picker. When mixing wool and batches none of the emulsion is put directly on the cotton. If the emulsion is applied to the cotton the latter will quickly absorb the greater part of the fluid and get clammy. It is very difficult to open cotton in this condition or to mix it with the wool. The wool should always be oiled separately, put through the picker, and the opened cotton mixed in afterwards. When the cotton in a half wool batch, through careless or faulty manipulation in the picking room, or poor carding, has started to form nips, nothing will afterwards make the work right.

When dyed cotton and cotton waste are carded, it is even more important that no excessive amount of oil or emulsion is used, as this will cause bad carding and make a hard and compact roving, which will stand very little draft on the mule. In half wool batches of this kind care should be taken to have the cotton mixed in well, opened up and in as light and fluffy a state as possible. In fact the chief point is to get a soft and loose roving. To this end leather covered rubbing rollers are a necessity. For cotton and half wool knitting yarns rollers should also be used, as these give the yarn and also the fabric a better and more woolly appearance, which cannot be obtained if leather hose rubbers are used.

The card clothing wire generally used is as follows: Swift and workers; first breaker, No. 22; second breaker, No. 24; finisher card, No. 26. Nos. 24, 26 and 28 are sometimes used in place of the foregoing. The doffer wire is two numbers finer. The wire is subjected to a great amount of wear and tear and must be of the very best steel, set in a good solid foundation and felted to a point above the knee.

The high speeds and small carding surfaces on the German cards are of course very detrimental to the card clothing. Cotton wastes containing threads and lumps also offer great resistance to the card wire. The German spinners do not make a point of having the wastes well garnetted, leaving this to be done by the cards. This of course does not lengthen the life of the card clothing. On the cylinder the card wire will last about two years after which time it will be pretty well worn down.

The question may be asked whether these fast running cards are not detrimental to the material and do not break the fibers, resulting in a poorer yarn of less strength, and in the inability to spin some kinds of stock as fine as on the older and slower cards. To this I will say, that the yarn is quite as good, and in some cases perhaps better. We are able to spin quite as fine counts, and of cotton or cotton waste even finer. For fine woolen yarns of high counts, where it is important to retain the staple and length of fiber, the carding has to be done very carefully, and it will perhaps be advisable to reduce the speed.

The success of the Continental cards is indicated by the fact that Germany supplies the larger part of Europe with woolen spinning machinery and exports large quantities of woolen yarn. A great number of German manufacturers have erected works abroad, especially in Scandinavia and Russia.

RECORDS BY TALLY-STICKS.

Boston, Mass., Dec. 11, 1908.

Editor Textile World Record:

My dear Sir: My attention is drawn to that portion of your "Talk on Textile Arithmetic" before the Lawrence Textile School, which relates to "Records by Tally-Sticks."

If you will turn to E. D. Pierce's life of Chas. Sumner you will find an account of a little incident bearing on this matter. It must be ten or a dozen years since I glanced through that portion of Pierce's ponderous work, but in it I remember he describes Mr. Sumner returning to Boston after his first visit to Europe. This was about the year 1840. As Sumner walked up the familiar streets of his native city he had in his hand two of these tally-sticks, which he brought back with him as curiosities. Subsequently, I think he gave them to the Library of Harvard University.

Your interesting "Talk" revives this recollection in my mind.

Yours truly,
CHARLES FRANCIS ADAMS.

A TOWELING FABRIC.

This toweling fabric, which has been recently patented, is made with the object of fastening the loops on both sides of the cloth more firmly than has heretofore been possible. Fig. 1 is a perspective view of the weave. The warp threads consist of two classes, the loop warp, 1 and 3, and the binder warp, 2 and 4. These may be arranged in the order shown or otherwise as desired.

The loop warps are of two sorts, according as the loops project from one side or the other side of the fabric. As shown at Fig. 1, these alternate with each other. As in terry weaves of this general character, the loops are beaten up as the fabric is woven, this action being permitted by the slackening of the loop warps as they are fed. Where the loop is formed, the loop warps pass over or under two picks, and both the upper and lower loops are formed along the line of the same two picks, whereby a complete course of loops alternately on the face and back of the fabric is formed, crossing its width coincident with these two picks, which may be termed the loop picks. These loop picks recur at intervals of six picks, that is to say, there are four picks between each pair of loop picks, the first of the four being the pick by which the loops are beaten up, and the other three constituting binding picks, whereby the loop warps are more firmly interwoven with the picks during the intervals between the loops, than is the case in a similar fabric where the loops recur without the interposition of these three picks.

Threads 15, 16, 22 and 23 constitute the loop picks; 17 and 24 are the succeeding picks, by which the loops are beaten up; and 18, 19 and 20 are the intermediate picks. These intermediate picks are woven as a twill. The construction is not dependent upon the exact nature of this intervening weave, but is distinguished by the fact that in addition to and interspersed between the three picks which are essential to the constitution of each loop course, there are interposed a plurality of picks, preferably three, forming a weave which tends to interlock or anchor the loop warps, so as to prevent the loop from being pulled out.

Questions and Answers

Under this head we undertake to answer, free of charge, to the best of our ability, any pertinent inquiry pertaining to textile matters received from any regular subscriber to the TEXTILE WORLD RECORD. Questions should be stated as briefly and concisely as possible. Inquiries pertaining to textile processes, machinery, improvements, methods of management, the markets, etc., are especially invited, as well as any legitimate discussion on the views expressed. All inquiries must be accompanied by the name of the person inquiring ,not for publication, but as an evidence of good faith.

For reply to questions that are not of general interest to readers of textile journals, such as those relating to the composition of yarns, analysis of fabrics, etc., we will charge the enquirer with the cost of the investigation.

Wire Heddles.

Editor Textile World Record:

I would like information on the following points regarding German tinned steel wire heddles for fancy weaving.

1. What is about the average life of heddles made of No. 28 wire and used on No. 30 yarn?
2. Is it considered good practice to use heddles until they break or wear out?
3. If heddles should be discarded before they wear through or break, how am I to tell at what point it is advisable to throw them out and put in new ones?

We have been using wire heddles for about ten years, and so far as I know the entire equipment of heddles has never been changed, although new ones have been bought from time to time to replace those lost or broken. Our work where we use the heddles is not running as well as it should, judging by results we get from the same yarn running on the Draper loom with steel harness. It occurred to us that the trouble might arise from worn heddles. We have accordingly examined a large number of them under a magnifying glass and find that the solder is worn out from the bottom and top of the eyes, but the wire shows no signs of wear or cutting.

Heddle (1040).

It is very difficult to determine the life of heddles, as a great deal depends on the yarn used. If a coarse yarn or a yarn that has not been properly sized is used, the heddles will not last long, about one year at the most. If the yarn is smooth the heddles should last about two years. Of course, a great deal depends on the weave of goods that the mill makes. It is not a good practice to use heddles until they break or wear out. The heddles will not wear out at the eye, but will wear at the harness rod. They get bent over and will catch the yarn, causing pick-outs and poor cloth. When the solder is worn off it is time to discard the heddles. In the process of weaving the yarn goes from top to bottom of the eye in every movement of the harness and it is the top and bottom of the eye that does all the work. If the yarn is gritty or lumpy it takes but a very short time before nicks will be worn at the top and bottom, in which the yarn will catch.

New heddles should never be put on the same frame with the old ones or with heddles that are partly worn. When one of the old heddles breaks at the top, bottom or in the eye the weaver takes the reed hook or scissors and will twist and screw until the broken heddle comes out, often bending the new heddles out of shape. The heddles that are taken off can be looked over and the best of them used to fix up other frames that are in fair condition.

Heddles are a very important factor in the weave room and should be well taken care of. When the drawing-in girl starts a new warp she should look the harness over, putting them on the frame one at a time. If any of the heddles are tied up with twine or yarn they should be broken off and a small piece of waste wet with oil rubbed over the top and bottom rods. This will make the heddles move easier and keep them from rusting. The heddle rods in the frame are in most cases held up by two small hooks, sometimes by only one in the center. If they are screwed up too high they will in time cause the heddle to break at the top or bottom. All heddles should move freely on the rods, so in building a new set of harness these hooks should be attended to first. Bad spooling, slashing, web drawing and fixing, along with poor fixing, are the causes of two-thirds of the bad cloth that comes from the weave room, and the overseer should be looking out for this all the time. Another thing that may help him is that the reeds might not be deep enough for the rise and fall of his harness, thus causing the yarn to bind at the top and bottom of the reed.

The fixers may have the reeds set more on one side than on the other so that the yarn will not pull straight from harness to fell of cloth.

Imitation Embroidery.

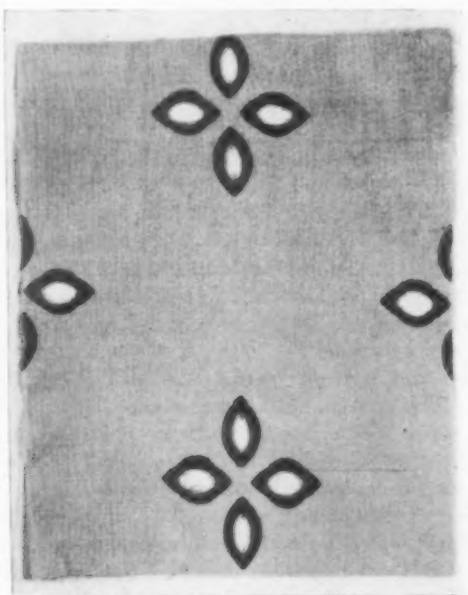
Editor Textile World Record:

I enclose a sample of imitation embroidery which is being sold at retail in the West. I would like very much to know where these goods are manufactured and where they can be bought in quantity.

Hermann (1031).

We referred this inquiry to an American manufacturer who sent us the following reply:

I am very well acquainted with this class of work, imitation embroidery. It has been done to some extent in this country but never with any great degree of satisfaction from a pecuniary standpoint. Nearly all of the larger print works in the United States had a try at it in a more or less experimental way. There are various methods by which the effect is obtained. I saw this work being done abroad on a large scale. First by printing the pattern with viscose or ordinary printing colors and then cutting out the holes or the openings in the pattern by hand. Small dies were used for cutting the goods. A great many girls were employed standing or sitting at tables, each with her own style of cutter for the particular part of the pattern to which she was assigned. This was a very effective way of accomplishing the result, but of course it entailed considerable expense.



SAMPLE OF IMITATION EMBROIDERY.

One of the large print works in the United States did quite a lot of the work in this way, but found that with the high wages paid in this country they could not compete successfully with the foreign cloths.

Another method of obtaining this imitation embroidery effect was to print in addition to the pattern a blotch or spot of some chemical with a strong acid action wherever the hole was wanted. The acid would attack the fabric and in the subsequent process of washing this part of the cloth would be washed out clean, leaving a well-defined hole. There are certain drawbacks in the last named process arising principally from the fact that the acid must be quite strong in order to do its work thoroughly. The printing and the cutting in this way can be done in one operation if the machine is properly rigged. Probably a small quantity of this work is now being done in the United States. No great success, however, has ever been attained outside of the foreign countries, where the manufacturers have at their disposal any amount of cheap or low-priced help. I enclose some samples showing this class of work (one of which is shown in the accompanying illustration).

Trafford.

Looping Cuffs on Shirts.

Editor Textile World Record:

Would you kindly give us the price paid for looping cuffs onto Balbriggan shirts, also the drawers in the various gauges?

Hadlock (1043).

The price for looping 26 gauge cuffs on shirts in this neighborhood is 5 cents per dozen pairs, and for drawers of the same gauge, 7 cents per dozen pairs, or 24 cuffs to the dozen. Usually balbriggan or other underwear (say coarser than 20 gauge) cuffs

are not looped, but finer than 26 gauge are. The price paid for 20 to 30 gauge would run from 4 to 7 cents per dozen for shirts and from 6 to 10 cents per dozen for drawers.

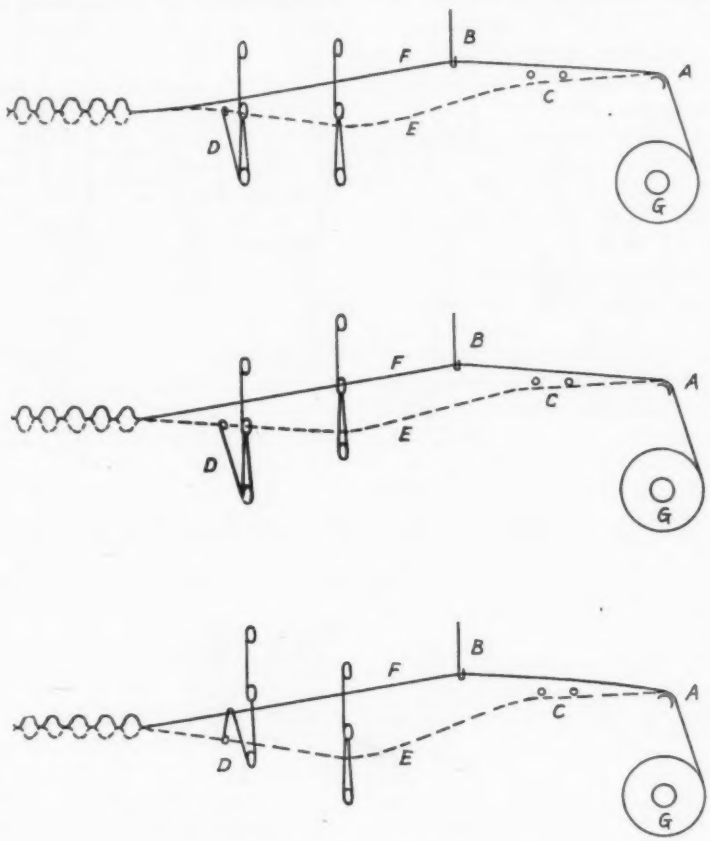
Lafayette.

Split Selvages.

Editor Textile World Record:

I would like to obtain information regarding mock selvages, that is selvages in the center or in any part of the cloth. Brantford (1044).

Split selvages are used to weave two narrow cloths in a broad loom. The difficulty of making a split is to make a centre selvage which would not allow the warp threads to unravel after the cloth is cut into two narrow widths. There are several mechanical devices for making a good split selvage, but I will illustrate two which have given good results. The first one is worked after the principle of a lens thread as shown at Figs. 1, 2 and 3. Fig. 1 shows the harness level. Fig. 2 shows the harness when doup is straight and Fig. 3 shows the doup crossed; a, the whip roll; b, the elastic for keeping the ground thread up; c, the lease rods; d, the doup; e, the doup thread; f, the ground thread. The split threads are generally made of ply yarns, 2/40s or 3/60s slashed on the same beams as the regular yarn, two threads for each selvage. The illustrations show the construction of one of the selvages, the other is drawn in the same manner. A single dent is left empty for space to allow the knives to cut without damaging the cloth. If two dents were left empty the space would be too great and would cause a bad selvage after the cloth is cut. The split threads after leaving the beam come over the whip roll, then the ground thread



FIGS. 1, 2, AND 3.

passes over the lease rods and the doup thread being always down and the ground thread up it is easier on the yarn and does not break as often. The ground thread after passing over the lease rods is held up by a wire hook (b) which is attached to the loom by a piece of elastic which allows the thread to be pulled down a little while the doup is over the ground thread. The doup thread is drawn underneath the eye of the back harness, thus allowing the harness to pull the thread down but not lift up, and then through the eye of the doup. This doup is made of a very fine steel chain about 1/16 of an inch in diameter. There is a great deal of wear and tear on the doup, and the chain will last about four weeks and costs from 6 to 12 cents per loom. This motion is mostly used on ordinary light plain cloth. Crompton & Knowles sell a very good motion for split selvages which would do for any cloth, whether light or heavy. Fig. 4 is a split motion sold by Crompton & Knowles. It is attached to a stand which is bolted to the arch of the loom. Fig. 5 is attached to Fig. 4 by bolt, H. Fig. 6 shows how it looks when on the loom. The motion is in the center of the loom in front of the harness and behind the reed. Arms, I, are fastened to the harness straps by a narrow piece of leather, L. The two threads of the selvage are drawn through the wire dents or grate, J, attached to Fig. 4, and the crossing threads are drawn through the eye of the needle, K, on Fig. 5. Arm 1^1 is attached to the front harness and arm 1^2 is attached to the back harness. When the front harness is pulled down arm 1^1 is pulled down, bringing the needles, K, to the right hand side of grate, J, and bringing the crossing threads at the right hand side of the selvage threads. When 1^2 is dropped the needles are pulled back to the left making a stitch in the selvage. Figs. 7 and 8 show the effect on the cloth.

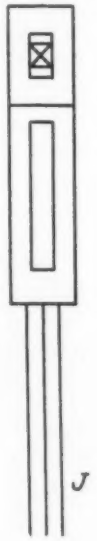


FIG. 4.

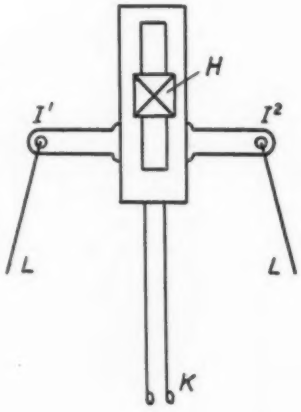


FIG. 5.

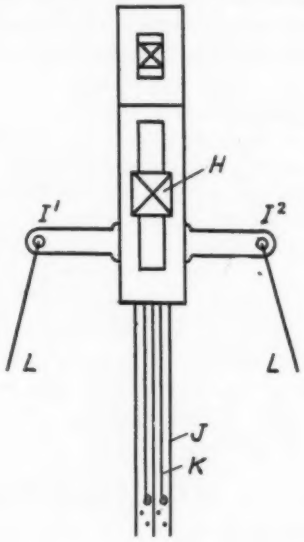


FIG. 6.

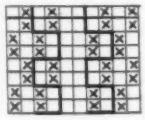


FIG. 7.

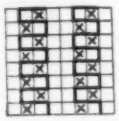


FIG. 8.

Denmark.

Japan had over one million cotton spindles that in 1906 consumed over 800,000 bales of cotton. The number of operatives is about 13,000 men and 46,000 women. The mills run 23 hours each day.

KNITTING DEPARTMENT.

For Knitting Mill Machinery, Equipment and Supplies, see pages 236 to 253. Also Buyers' Index.

THE KNIT GOODS SITUATION.

There have been a large number of knit underwear buyers in the market during the month of December and from what information we can get, a fairly good volume of business has been placed, but it is left to the month of January to place complete orders and to settle definitely on the lines for fall, 1909.

From conversations with a number of buyers who have been East, we gather that stocks in the main are very low. These buyers are giving the impression that their orders for the present season will be considerably larger than for the year just past.

One feature of note, is that manufacturers are meeting with little success in their efforts to get buyers to take in any goods during the early months of the year, as they have been accustomed to do for several years past. The tendency now is to put off delivery until the months of June and July.

Manufacturers making spring goods are all busy getting out their deliveries on time and it is now necessary to advise buyers that the duplicate orders they are now receiving, can only be taken for March and April delivery. In addition to this, some advances in prices have taken place. Some lines of ladies' straight ribbed vests in the lower end have been advanced 2 1/2 to 5c. per dozen and we also learn of some advances on men's combed Egyptian goods. For instance, lines that were sold early at $3.55 are now being held at $3.62 1/2 and that only for April and May delivery.

We learn that several manufacturers of men's top shirts have gone into the making of men's summer underwear in fancy patterns, the sleeveless coat shirts and knee length drawers particularly. These are assorted colored stripes and figures and get to the retailer for 50c. garments.

In fall lines a drop has taken place in the price of men's standard fleeces since our last issue. The lines quoted then at $3.50 are now being offered at $3.37 1/2, and the Farish-Stafford Co. have in their collection a 13 1/2-pound garment made by John Hover of Columbiaville, at $3.15 for January delivery, rise 2 1/2c. a month up to $3.25 for May delivery; for those delivered after June 1st, the price is $3.35 net 10, October 1st.

The Utica Knitting Co. are showing a 13-pound garment with sateen binding and whipped tail at $3.50. There has been considerable complaint during the season just past about the hem tail on men's fleeced shirt. Buyers have objected to pay the 20 cents additional asked by manufacturers for the bound tail and it is believed that if the cheaper method of whipping the tails is shown to buyers very freely, that they will be taken in preference to the bungling hem tail.

We are pleased to learn that an effort is being made in some quarters to make a 12 1/2c. rise on the low priced lines of children's ribbed and fleeced goods. Our attention was recently called to one line of fleeces that was being offered at $1.00 for size 16, rise 25c., less 22 1/2 per cent., or at $1.12 1/2 net on 16, rise 12 1/2c. Last season a step in the right direction was taken by putting the boys' fleeced goods on a rise and fall basis, with 12 1/2c. difference between the sizes. This has worked very satisfactorily as far as boys' goods are concerned, but the misses' pantalets of the same quality have been held at much higher prices for the same sizes. This has led to a mixing up of the lines and it is hoped that now we shall have an opportunity of buying vests, pants or drawers, as ordered, with 12 1/2c. difference on the sizes, which more nearly represents the actual difference in costs.

Some very attractive ladies' plain stitch bleached vests and pants are being shown for fall at $3.00 per dozen. These are made of carded yarns and run 7 to 7 1/2 pounds in

weight and with mercerized trim. Inasmuch as it is possible to make the bleached goods so much cleaner than the peeler in the carded yarn at the same price, these will probably be very popular selling numbers. The demand for bleached goods has extended to children's ribbed lines. The Lewis Jones Knitting Co. are showing a line that promises to be very popular on account of it reaching the retailer as a 25-cent garment for all sizes. It is made of carded yarn and sold to the jobber in sizes 2 to 7 at $1.75, and in sizes 8 and 9 at $1.90. These people are also showing a line of children's ribbed combination suits made of combed peeler yarn that they sell at $3.30 for size 2, rise 10c. on a size. This class of goods was very scarce during the past season and buyers have placed orders quite liberally for the coming year.

Men's coarse gauge tuck ribbed goods are offered as low as $3.12 1/2 by the Roff Underwear Co., who also show 11-pound tucks at $2.87 1/2, and 12-pound plain stitches at $3.37 1/2. The Utica Knitting Co. are showing 11-pound plain stitch ribbed goods in fine gauge at $3.25; 12 pound coarser gauge at $3.37 1/2 and 12 pound fine gauge at $3.50. They also have in their line an 8 1/2 pound ecru ribbed shirt at $3.25, and the Roff Underwear Co. are showing a similar garment at $3.12 1/2. This is a weight that is growing in favor and in which some very excellent values are being shown. The suits in the same cloth are being offered at $5.50 and $5.75.

HOSIERY.

Manufacturers' agents and commission men report that about two-thirds of the hosiery buyers have placed their hosiery orders for fall, 1909, and that the remainder are waiting until the first of the year. Buyers in the West and Northwest were ready and anxious to place their orders early, but eastern buyers are holding back.

There are no heavy stocks of winter hosiery being carried over by the jobbers. This is especially true of fleece lined goods. Manufacturers of this class of merchandise who had any stock cases to sell this fall, found ready sale for them at rather better prices than prevailed when advance orders were being placed.

Prices on seamless fleece lined goods are about the same as for fall, 1908, while those on full fashioned fleeces and heavy cotton are from 2 1/2 to 5 per cent. lower. Owing to the fact that the volume of business on fleeces and heavy cottons is steadily decreasing, there is nothing that is radically new being shown.

Qualities in wool and cashmere are greatly improved over last season, this having been decided upon as a better way than to reduce prices on old qualities which were very poor.

During the last two weeks of November and the first two of December, the jobbers booked a good volume of business for spring delivery, more, in fact, than they had previously booked in two months and a half. Retailers, as a rule, are not placing as large orders as they have been in the habit of doing, and are relying upon the jobber to have the merchandise for them when they want it. On account of this, there will unquestionbaly be a big shortage of some particular styles or colors when the season opens up and the manufacturer who is then equipped to meet the demand that will be made upon them will be kept more than busy.

The coming summer season will unquestionably be one of many colors and a color line is hardly worth considering that does not number fifteen to twenty shades. It is thought by some, however, that the advent of colors in the cheaper end of the line will destroy the popularity of colors in the better goods.

There are some who predict quite a popularity for white again, during July and August.

A splendid value for spring delivery in the shape of a fine gauge mercerized lisle hose with shaped leg and fashioned foot was recently brought out at a price below two dollars and the manufacturers secured large orders on it.

In the Chemnitz hosiery district, two-thirds of the machines are running full time, which means a larger total production than the entire output of two years ago, for the

reason that many more machines are now installed than there were at that time.

Hosiery manufacturers in that district have received enough orders to restore their confidence and the extremely low quotations that prevailed on desirable merchandise have been withdrawn.

Prices on yarn, whether for knitting or weaving, were advanced the first part of December, showing the effect of a heavier demand.

A KNIT BOUCLE CLOTH.

Editor Textile World Record:

In your July, 1908, issue on page 483 there appears an article entitled "A Knit Boucle Cloth," which begins as follows:

> A patent has recently been issued for a cloth knit with back and face yarns, the latter being united to the former at intervals by a tying-in-yarn. The face yarn is curled prior to the knitting operation, so as to produce by the knitting operation itself a fabric having a mass of closely and uniformly disposed rings or curls over its entire face.

After reading this extract I thought of how true it is that there is nothing new under the sun, for here a patent is granted

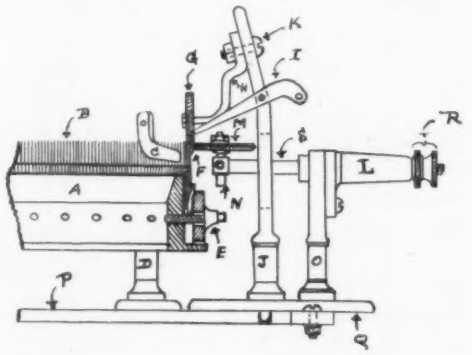


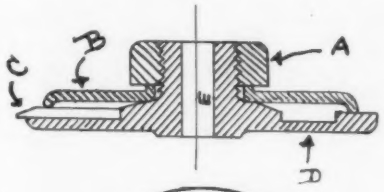
FIG. 1.

for a boucle cloth which I produced over 20 years ago.

The only sample piece I have left is shown at Fig. 4. This is a boucle cloth, composed of a back and face yarn, the face yarn being united to the backing yarn at intervals, without an extra tying-in-yarn. The face yarn is not curled prior to the knitting operation, but is a straight ordinary worsted or mohair yarn, the curl coming up in the finishing of the fabric.

In the sample shown at Fig. 4 the face yarn which curls up in the finishing is only one thread in every fourth feed. There are three courses of ordinary plain single thread knitting, and then every fourth course is composed of the two threads, one, the worsted or mohair thread for the face of the fabric, and the other a cotton thread for the back, which acts as a tying-in-yarn for the face thread. When every feed is composed of these two threads instead of every fourth feed, the face of the cloth would answer to

FIG. 2.



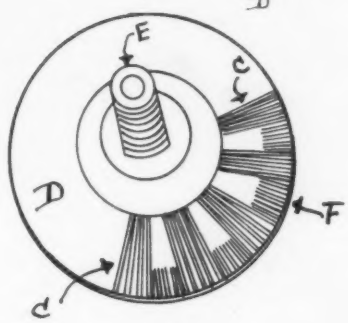


FIG. 3.

the description of the cloth for which a patent has been granted, that is, "a mass of closely disposed rings or curls over its entire face." The effect is shown at Fig. 53, page 140, in the August, 1903, issue of the Textile World, in my article on "Knitted Astrakhan Cloths." Fig. 53 shows the mass of rings or curls running diagonally across the face and this cloth was produced in the same manner as the boucle cloth, using only straight ordinary yarns. When dyed and finished different curly effects were the result, as shown in Figs. 50, 51, 52 and 54 in the same article. These curly effects were varied by a greater or less number of courses of the face yarns. Some were knit with face yarn every fourth course, some with face yarn every other course, and some with face yarn on every course, and the curly

effects were further varied by using finer and coarser face yarns, either worsted or mohair.

The fabric as illustrated at Fig. 4 was made on a spring needle circular machine, 30 inch cylinder, with four feeds. The back or tying-in-yarn was 12s or 14s cotton and the face was a mohair worsted yarn, about 16s.

Fig. 1 is a cross section of a needle cylinder showing the adjustment of the main wheels used for boucle and astrakhan cloths. Fig. 2 is a cross section of the needle presser, M, Fig. 1. Fig. 3 is a perspective view of the needle presser, M, Fig. 1, showing the movable blades. Fig. 5 is a plan view of the wheel G, Fig. 1. Fig. 6 is a side elevation of same wheel. Fig. 7 is a front view of cloth cam, C, Fig. 1. Fig. 8 is a side elevation of same.

FIG. 4.

A, Fig. 1, is a cross section of the needle cylinder; B and F are the needles; C is the cloth cam which carries the knitted fabric to the bottom of the needles. D is the stand to which is attached the cloth cam, C; this is fastened to bed plate, P. E is the needle plate and screw bolt, which holds the needles in place in the needle cylinder, A.

G is the wheel which feeds the worsted or mohair face yarn between the needles, staggered or pressed back by the Kinsey needle presser, M.

H is a bracket attached to a stand, J, by a bolt and nut, K. At the extreme end of this bracket is a stud and nut; upon this stud the wheel, G, freely revolves, it being meshed into the needles, B, above the tops of the needles. The needle cylinder thus turns the wheel, G.

I is the yarn guide for wheel, G, the yarn being held in position on the wheel by a groove in the center of the blades, Fig. 6.

J is the stand attached to link, Q, and bed plate, P, to which is attached the yarn guide, I, bolt and nut, K, and bracket, H, with its wheel, G.

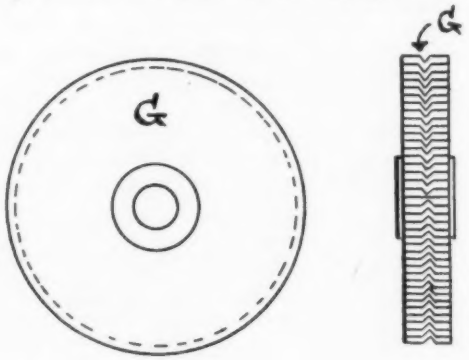


FIG. 5. FIG. 6.

L is the barrel part of the stand, O. M is the Kinsey needle presser which revolves on the stud, N, attached to the shaft, S. The adjustable nuts, R, on the extreme end of the shaft, S, through the barrel, L, are for the purpose of adjusting the needle presser, M, into or out from the needles, B.

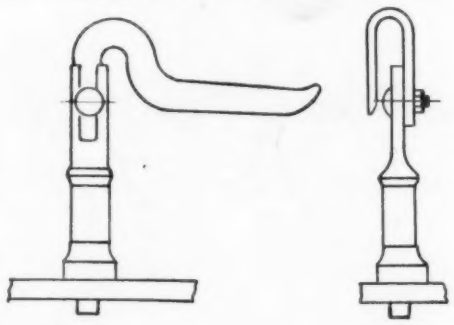


FIG. 7. FIG. 8.

O is a stand attached to the bed plate, P, and slotted link, Q, to which is attached the barrel, L.

Fig. 2 is a cross section taken through the

body part of the wheel, Fig. 3, showing the cap, B, and nut, A, which secures the movable blades, C, in place within the body part, D.

Fig. 3 is a perspective view of the needle presser, M, Fig. 1, with the cap and nut removed, and shows some of the movable blades, C, fitted in, and some removed, leaving only the slots, F.

D, Figs. 2 and 3, is the body part of the presser wheel, which is hollowed between the center shaft passage and the outer rim.

F, Fig. 3, indicates slots that are formed in the outer edge of the body part at right angles to the face of the rim. As thus made these slots in the rim of the wheel are on a line parallel to the axis of the wheel, and are made wide enough for the needles of the machine to pass through without pressing the needles back. C shows the blades that are made to fill the slots. These are arranged when in the slots so as not to pass outwardly beyond the rim. Thus the outer ends of the blades with the parts of the rim between the slots form a continuous surface where they follow each other in succession in the slots. In this position they press back the needles.

B, Fig. 2, shows a cross section of the cap that covers the blades, C. This cap is secured in such position so as to retain the blades by a nut, A, which is threaded and screwed on the hub, E, Fig. 3. This hub, E, is provided with an opening, E, Fig. 2, for the stud, N, Fig. 1. Upon this stud the presser wheel, M, revolves by contact with the needles of the machine.

Fig. 1 shows only the two special wheels and the cloth cam used in making boucle and astrakhan cloths and their adjustment one with the other. In addition to these there were the regular clearing wheel for carrying the face yarn down to the bottom of the needles following the wheel, G, and under the regular feed burr which carried the cotton or tying-in-yarn into the needles; also the usual plain needle presser, and the landing and cast off burr wheels.

The wheel, M, Fig. 1, where a movable blade was inserted pressed back or staggered that needle. Where the slots were left without any movable blades the needles were not pressed back. For boucle cloth this pressing back of a needle was done irregularly. It could be every third or fourth needle for several needles, and then every alternate needle for one or two needles, thus making it irregular. If, however, a regular pattern was desired, like Fig. 53, page 140, August, 1903, issue, then the movable blades would be inserted regularly every third or fourth needle, to figure out evenly with the number of slots in the wheel and the number of needles in the cylinder to figure out with the presser so as to leave a remainder of one or two needles to produce the diagonal effect.

The method therefore was for the needle presser, M, to press back irregularly one needle, the wheel, G, being adjusted directly over the point of contact of the needle presser with the needles pressed back, and down over the tops of the needles. The face yarn through the guide, I, carried in the groove, Fig. 6, in wheel, G, was placed down in front of the needles thus pressed back, and at the back of the needles not pressed back. The main advantage of this method of placing the face yarn, was that it was laid perfectly straight between the needles without requiring any tension on the yarn, whereas in the other method of using the regular backing or plush wheel even with a lot of tension on the yarn it could not be placed otherwise than loosely. By my method, the yarn was placed without any tension and was tight enough to hold those needles back which had been pressed back, after they had left the presser wheel. When the yarn was cast off, it appeared as a straight line of yarn around the needle cylinder, which gradually loosened up as the knitting proceeded by the contracting of the plain knitting of the back, and by the further narrowing of the width of the fabric in dyeing and finishing. This contraction resulted in the curling of the yarn on the face.

These boucle and astrakhan cloths were made between the years 1884 and 1888 at the time when what was known as Jersey cloth was so popular. They were all knit on needle cylinders, 30 inches in diameter, so that the cloth after dyeing and finishing measured 52 to 54 inches wide. It was sold

by the yard as are double width tweeds and broadcloths.

The boucle and astrakhan cloths were used in the manufacture of jackets, and the boucle cloth was also used for ladies' skirts. the principal colors were browns, blues, black and cardinal.

F. W. HERINGTON.

A SEAMLESS FINGERING MACHINE.

The accompanying illustration shows a seamless fingering machine built by James Leckie & Son, 821 North 13th St., Philadelphia, Pa., which has been operated under practical conditions in many of the best mills in the Philadelphia district, giving complete satisfaction. Among the advantages claimed for this machine are the following:

The needle plates open in book fashion so as not to change the gauge of the needles. An automatic attachment forces the needle hooks beyond the throat of the needle plates so as to give plenty of clearance for hooking on the work and going into place when the plates are closed ready to operate. The

A SEAMLESS FINGERING MACHINE.

rotary motion of the cam locks gives an increased production over that obtained by the old reciprocating motion, making a continuous run of the machine as in the ordinary circular knitting machines.

The machine is fitted with ball bearings and equipped for either hand or power. With the ball bearings the machine runs so easily that it can be operated by hand at a very high speed. If operated by power the machine is controlled by a treadle attachment on the floor, by which the power can be applied at will.

The builders will be pleased to supply further information regarding this machine to any one interested and refer them to knitters who have the machine in operation.

SINGEING HOSIERY WITHOUT BOARDS

Hosiery manufacturers are much interested in the automatic singeing machine which has been perfected and is now being put on the market by the inventors and builders, The Philadelphia Drying Machinery Co., 6721 Germantown Ave., Philadelphia.

With this machine hosiery is singed without the use of boards. The advantages of this machine will be clearly understood by a brief reference to the old method as compared with the new.

When boarding stockings for the old style singeing machines, the operatives stand facing a table with piles of stockings in front of them. Each operative also has a pile of empty boards on his left side. He picks up a board with one hand, a stocking with the other hand and then draws the stocking on the board, after which he lays the boarded stocking on a pile to his right. To do this work properly required able-bodied men who usually get from 75 to 85 cents per hundred dozen stockings. Boys are then employed to carry the boarded stockings and feed them to the old style singeing machines; after which they carry the empty boards back to the boarding tables.

With the new "Hurricane" automatic singeing machine, the upright forms are mounted on a revolving table or platform. The operative stands at one side of the machine, and as the forms pass him in succession, he draws a stocking over each form. This operation amounts to about the same amount of labor as turning stockings on a pole. Boys, instead of men, can do this work, and as the usual price for work of this character is from 25 to 30 cents per hundred

dozen, it will readily be seen that there is a clear saving of 50 to 55 cents per hundred dozen in the labor of boarding alone.

In the old style machines, it is necessary to carry the boards and feed them to the singeing machine, but this item of expense is also saved by the new machine.

Taking into consideration the labor saved in boarding and that of carrying the boards to and from the old machines, it has been found that about two-thirds of the total cost of labor has been saved,—in other words, the new machine can be operated at about one-third of the labor expense of the old system.

The stockings are carried automatically through the processes attendant to singeing, and an especially effective arrangement of the singeing burners enables the work to be done with but a fraction of the gas heretofore required. A very considerable item is saved also in the cost of the boards themselves.

In a comparison recently made in a mill where the new machine is installed, it was found that whereas eight boys had been required to turn out a certain quantity of work on the older style singeing machine, this same quantity can now be turned out with but two boys, the work done in a better manner and at less expense for gas.

Duplicating a Knit Fabric.

Editor Textile World Record:

We are making a light weight bleached ribbed vest and want to know how to set a knitting machine to make a certain webbing. We are enclosing a piece of webbing, No. 2, that we want to make, also a piece, No. 1, of what we are knitting. We like the loose, flat stitch in the webbing desired and would like to know what change to make in our machine to produce the result.

Portland (1033).

I have thoroughly examined the two samples of knit fabric, Nos. 1 and 2, and find that as far as the knitting goes they are identical. No. 1 on the top end is a plain 1 by 1 rib; the lower part is made with alternate rows of plain and tuck stitches, 1 by 1 rib.

No. 2 has alternate rows of plain and tuck stitches, 1 by 1 rib.

It will be observed that in No. 1 the wales of the tuck stitch rib lay close together, and in sample No. 2 they are open and apart. It is this effect of the wales of the rib showing up better that I understand your correspondent desires to obtain. It is not obtained in the knitting of the fabric, but in the finishing of the cloth or garment.

If No. 1 is stretched and held apart it looks exactly like No. 2. To produce the

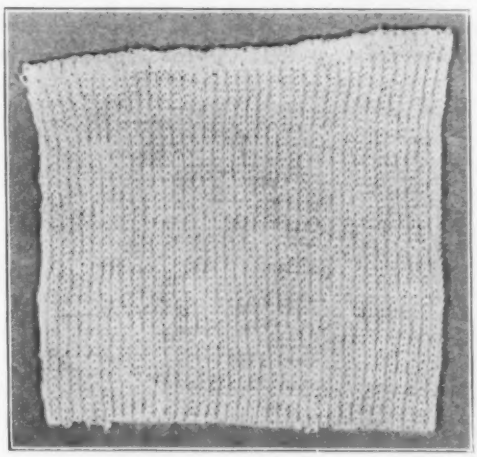


FIG. 1.

same effect in No. 2 the garment should be boarded so as to stretch it apart; when dry it will remain so.

I am of opinion that No. 2 is not part of a ribbed vest like No. 1, where the machine changes from 1 by 1 rib plain stitch for the waist part to 1 by 1 rib tuck stitch for the body, because the plain part of the knitting has a tendency to draw together the wales of the rib in the tuck part, the plain part being narrower than the tuck part. I examined some ribbed vests today like No. 1 and found them to look the same. I also examined some corset waist covers that looked the same as No. 2, including the finish of the sewing machine on the bottom.

The ribbed vests had about an inch in length of plain stitch at the bottom whereas No. 2 has the tuck stitch clear to the bottom. From my investigations I have come to the conclusion that the cloth of sample No. 2 is made all 1 by 1 rib tuck stitch and that the machine does not change from tuck stitch to plain stitch as desired for shaping the

ribbed vest as that which produces No. 1 does.

If No. 2 had been the same as No. 1, part plain and part tuck stitch, and still showed the different effects, then I should have had to arrive at some other explanation for the difference. My conclusion is that the cloth of No. 2 is made all tuck 1 by 1 rib and tubular; that it is bleached in the roll, and in drying is run over a spreader to open up the wales of the rib; and that then the corset waist covers are cut out from the

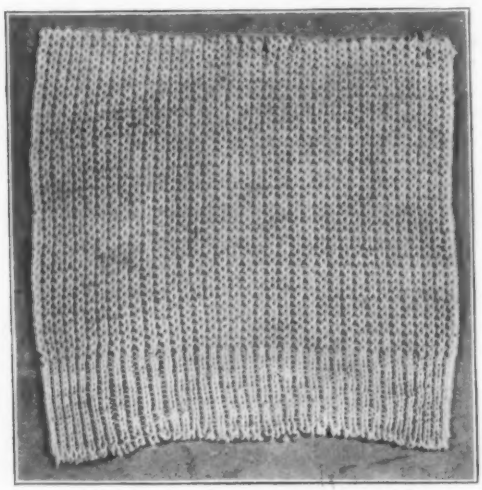


FIG. 2.

cloth thus dried, which of course remains as shown in sample No. 2.

The only way in which the effect of No. 2 could be produced in the knitting would be to have the feeds which make the tuck stitch courses make a shorter stitch than the plain courses, as the tuck stitch loops are of course larger than the all plain loops. To do this, the stitch cams of the tuck feeds would have to be equipped with a movable cam, the same as is used on this class of machinery for making what is known as a slack course in hosiery for looping purposes.

This of course could easily be done, and operated automatically by the chain which on the machine operates the changes for all plain work to tuck work. At the same time the machine is changing from plain to tuck, the stitch cams of the tuck feeds, which are every alternate feed, would be operated upon to shorten the stitch, and in like manner operated to lengthen the stitch again, when changing to all plain work.

If the tuck stitch is shortened so that the loops of the tuck stitches would not be any larger than the all plain loops, then the wales of the ribs would have a tendency to be open and apart like No. 2 without decreasing the elasticity of the fabric.

Your correspondent can easily make a test by knitting the fabric in the manner just described, by adjusting the stitch cams of the tuck feeds to make a shorter stitch, and then knit a piece of cloth all tuck, 1 by 1 rib, without changing to all plain 1 by 1 rib. If the effect proves to be just what he wishes to produce, the machine can then be made to do the work automatically. Lafayette.

MEASURING ON CIRCULAR KNITTING MACHINES.

This is a device, recently patented, for measuring the length of hose on the knitting machine irrespective of the number of courses knit. Fig. 1 is a front view of a machine with the measuring mechanism attacher; Fig. 2, an end view; Fig. 3, a rear view. The inventor describes the attachment and its operation as follows:

The rotary cam cylinder, mounted, is rotated by bevel gear on the pulley shaft, 7; rotary or reciprocating movement being effected by means of tight and loose pulleys and a clutch. The pattern chain, carried on a pattern wheel having a ratchet, is driven by a pawl which is connected to a pivoted pawl-carrying lever (Fig. 3) arranged to be swung by the reciprocating rack-bar. Provision is made for effecting the changes required for alternate rotary knitting, and for holding the pawl out of engagement with the pattern ratchet wheel so as to leave the pattern mechanism at rest during ordinary knitting, and for connecting the pawl and ratchet when the desired length has been knit, so that the pattern chain may then effect the required changes for heel and toe knitting. A pair of drop weights are used for this purpose, adjustably secured to a drop-frame, which is provided at its upper

end with hooked fingers to be attached by the operator to the depending top-edge of a stocking, see Fig. 1, preparatory to knitting the leg portion. The lower drop-weight is set to suit the length of leg portion, and the upper drop-weight is spaced to suit the length of foot portion. These weights are arranged to slide vertically upon a guide-rod fixed to a support, and are slotted so as to pass the arm of a bell-crank which is

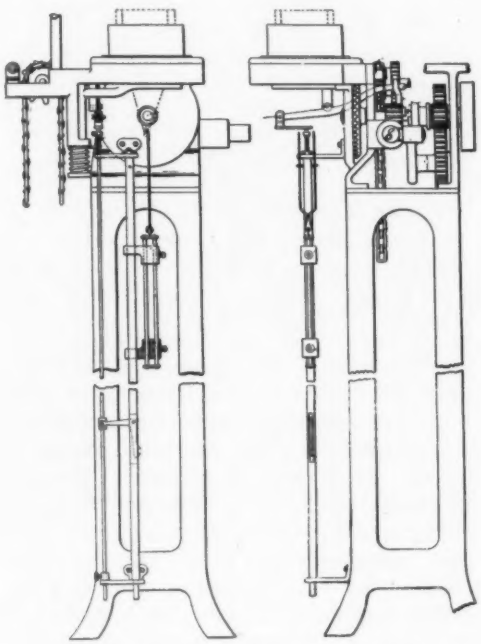


FIG. 1.

FIG. 2.

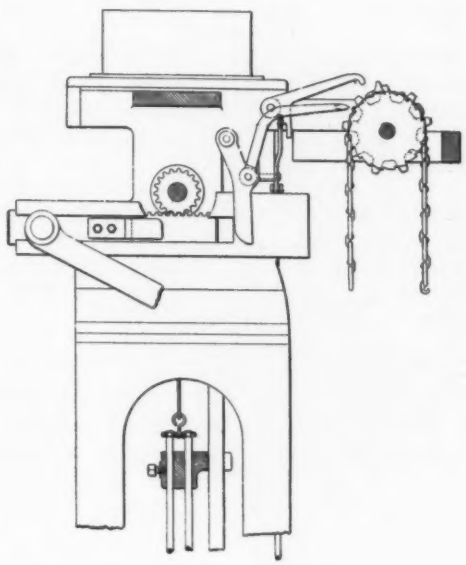


FIG. 3.

pivoted to a guide-rod so that the vertical arm will project into the patch of the descending weights, while the other arm is connected to a parallel movable rod, the upper end of which is connected to one end of a pivoted lever, 33, the other end lying under the drive-pawl. The weight of this movable rod is partly counterbalanced by a spring so as to facilitate raising it by the action of the drop-weights upon the bell-crank; the movable rod, however, normally falling into lowered position so as to cause the end of the pivoted lever to hold the drive-pawl out of engagement with the pattern ratchet wheel until the movable rod is raised by the descending drop-weight. This occurs after the required length of tubular leg portion has been knit; the lower drop-weight then automatically operates the bell-crank to raise the movable rod, and thus permits the constantly reciprocated drive pawl to drop into operating engagement with the pattern ratchet wheel.

This operating engagement must continue until the pattern chain has effected, as usual, the required changes in the operation of the machine to produce the heel portion of the stocking. The construction allows the drop-weight to pass the bell-crank arm, and a latch is arranged to hold the lever end in depressed position until the latch is moved at the proper time by a projection on the pattern chain so as to release the lever and permit it to raise the pawl out of action. The rotary knitting to form the foot of the stocking then continues until the properly spaced upper drop-weight acts upon the bell-crank to throw the pawl into action again, and bring the pattern chain into service as before for effecting the required changes for the knitting of the toe.

New Machinery and Processes.

This department is designed to present from month to month a brief mention of new machinery, devices and processes being brought out in this country and abroad, that are of interest to textile manufacturers. It is not a list of patents, but of improvements coming on the market. The idea being to present to our readers a systematic monthly record of new machinery etc., of interest to textile mill men.
We invite machine builders and others to send us such information for this department.

Automatic Attachment for Circular Rib Knitting Machines. The Climax Machine Co., 1753-55 N. Howard St., Philadelphia, is bringing out an automatic attachment for circular rib stocking knitting machines, which is claimed to increase the output one-third without additional expense for labor or power.

Revolution Counter. Schuchardt & Schuette, 138 Liberty St., New York, are placing on the market a new type of revolution counter which is described and illustrated in this issue.

A Steel Lappet. Tytler & Bowker, Manchester, England, have recently placed on the market an improved steel lappet for ring spinning frames, which they call the "Perfection."

Dyeing Yarn on the Cop. C. H. Weisbach, Chemnitz, Germany. An improved machine for dyeing yarn embodying a compact, simple construction and capacity for a large production. This machine has been in use in German dye houses for a number of years and has recently been improved.

Tape Printing Machine. John Haddon & Co., Salisbury Sq., London, E. C. A machine for printing trade marks or other designs at intervals on narrow fabrics, such as tapes for corsets, etc.

Excluder for Economizers. Edward Bennis & Co., Little Hulton, Bolton, England. A device for excluding the air from fuel economizers at the chain holes. It requires no attention and the construction is so simple that there are no parts to get out of order.

An Opener for Kapok. Paul Gouverneur, Croix, Nord, France. A duster or opener for opening and cleaning kapok.

A Drying Machine. Alphons Neff, Elsasse, Germany. A cylinder drying machine equipped with a series of small rolls arranged around the drying roll and designed to act as spreaders for keeping the cloth stretched out to its full width.

Oiler for Nappers. A. Monforts, Gladbach, Germany. An automatic device for oiling the bearings of the rolls on a cloth napper. The oil is automatically fed to the bearings in the quantity desired while the machine is in motion.

Dyeing Machine. Herman Windrath, Grevenbroich, Germany. A machine for dyeing textile materials by the circulating system. The liquor is forced through the goods alternately in either direction.

Piece Pressing Machine. Messrs. Tomlinsons, Ltd., Soho Works, Rochdale, England. A machine for pressing pieces that are sent to market folded instead of being rolled on boards. The pressing of these folded goods has been usually done by hand and this machine is designed to give a more compact piece and save much of the cost of labor.

Automatic Loom. Pearson & Spurr, Birstall, Leeds, England. A loom for weaving woolen goods in which the shuttles are changed automatically while the loom is in motion.

Cloth Folder. W. B. White & Sons, Ltd., Colne, England. An improved folding and measuring machine for piece goods. The machine is said to be suitable for folding all kinds of cloth without damage to the goods.

Humidifier. Heenan & Froude, Ltd, Worcester, England. An air moistener for workshops. It consists of discs partially immersed in water and revolving in an enclosed chamber. A current of air is circulated through the chamber of the moistener and after absorbing the water from the discs is carried to different parts of the factory.

THE PALMER REVOLVING THREAD-GUIDE.

The Palmer revolving thread-guide for wet or dry twisting, invented by Mr. I. E. Palmer of the I. E. Palmer Co., is a decided novelty in thread-guides. It consists of a frame of brass or malleable iron and a grooved pulley of brass which revolves on a pin supported in the frame. The pin and pulley may be easily removed by turning aside the small pieces which cover the pin bearings. The frame is so constructed that the yarn connot run off the pulley and snarl

up; at the same time, piecing up is more easily accomplished than with a wire guide, it being only necessary to tie the ends together and let the yarn fall against the front of the frame between the wings.

The three chief advantages afforded by the revolving guide are improvement in the twist of the yarn, decrease in driving power, and long life as compared with a wire guide.

The yarn, as it runs over the pulley, rolls over and over in the groove which lays the fiber closely and makes a very smooth thread.

As to wear, we are informed the guide has been run 3860.7 revolutions per minute for 258 hours and 40 minutes, or a total of 59,-918,064 revolutions without showing any wear. This test is equivalent to 272 10-hour days at 130 r. p. m. of a front roll 1 1/2 inches in diameter.

To insure continuous revolving on wet twisting the guide should be cleaned not oftener than once in two weeks, but should the pulley stop running temporarily, no wear will result, because of the comparatively long surface on the pulley over which the yarn travels. All the guides on an ordinary twisting frame can be cleaned in a half hour. On dry twisting the guide will, of course, run much longer without cleaning.

This guide is intended for use with the ordinary wood clapper, and is attached and adjusted in the same manner as the well known Palmer adjustable thread-guide.

THE CARRIER DIFFERENTIAL THERMOSTAT HUMIDITY CONTROL.

Many attempts have been made in the past to devise some apparatus that was quickly and positively susceptible to changes in the relative humidity of the air and that could be used as a controlling device to regulate a humidifying system. Nearly all these inventions have depended for their action upon

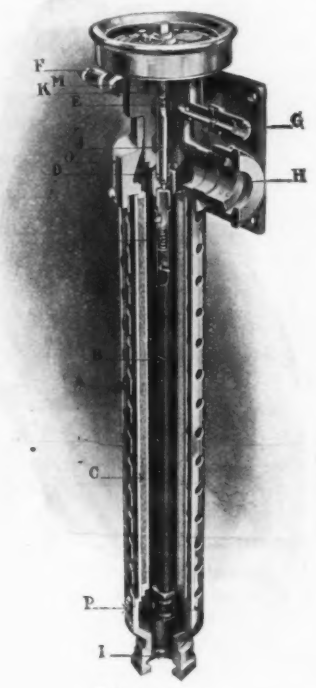


FIG. 1.

the hygroscopic properties of silk, hair, wood or other animal or vegetable substance, but the time element necessary for the material to absorb or give off moisture, a lagging effect which oftentimes is not quick enough to give accurate control. Moreover the hygroscopic properties of a material may not remain constant, but the power of absorbing or giving off moisture diminishes gradually although very slowly in some substances.

Another method to accomplish the con-

trol of relative humidity employs a wet and dry bulb thermometer, through which an electric current is passed. The variation in resistance of the electric current due to the height of the mercury columns is used to control the humidifying system.

W. H. Carrier, consulting engineer for the Carrier Air Conditioning Company of America, 39 Cortlandt St., New York, began

FIG. 2. DIAPHRAGM VALVE AND LEVER DIAPHRAGM.

work on this problem several years ago along different lines. He developed several schemes, all of which, excepting his latest, were abandoned because they did not fulfill the requirements which he considered necessary for such an instrument. He wanted an instrument that would respond quickly to any changes in the hygrometric conditions; that was simple yet positive in action and strong in construction, and easily adjusted for different percentages of humidity, but above all, he wanted an instrument that was accurate at all temperatures between 60° F. and 105° F. The Differential Thermostat, illustrated on Fig. No. 1, is the final result.

The Differential Thermostat although invented in 1906 was not put on the market until the past year, as it was thought best to thoroughly test it practically before offering it for sale. The instrument when used in connection with the Carrier system of humidifying has one expanding element, B, subjected to the dry bulb temperature, and the other expanding element, A, subjected to the dew point temperature of the room, thus taking advantage of the fact that for a given percentage of humidity the dew point temperature is approximately a fixed number of degrees lower than the dry bulb temperatnre.

The number of degrees the dew point is below the room temperature for several percentages of humidity is as follows:

85% approximately ..... 6 °
80% approximately ..... 7½°
75% approximately ..... 9 °
70% approximately .....11¼°
65% approximately .....13¼°
60% approximately .....16¼°

It will be noted by referring to the illustration that the two expanding members, A and B, are made of metal tubing perforated to allow the air to freely circulate on each side, thus quickly imparting its temperature to the metal.

The dew point member, A, is rigidly fastened to the head, O, and is free to expand in the direction of I.

The dry bulb member, B, is rigidly fastened to and supported by the dew point member at A, so the dry bulb member, B, is free to expand in the opposite direction to the dew point member, A.

Between the two members is a double tubing and mineral wool insulation to prevent the one temperature from affecting the other.

In the head is carried a small double seated compressed air valve, J, having seats at E and D. The valve is kept on its seat at D by a small spring, K, unless it is held off this seat either by the expansion of the dry bulb member, B, or by the contraction of the dew point member, A.

From the above it is seen that the instru-

ment is very simple, really consisting of two members expanding in opposite directions, and one double seated air walve so arranged that a variation in the difference in temperature immediately effects position of the air valve.

In operation all except the head of the instrument is inserted in the air duct leading from the humidifier, and as the air is always saturated in the humidifier, it is at the dew point temperature, which immediately imparts its temperature to the dew point member, A. A pipe connection heavily insulated is made from the union, H, to room in which the humidity is to be controlled, and a similar connection is made from I to the inlet of the ventilating fan, thus what might be termed as a sample of air at the room temperature is passed over the dry bulb member, B.

A diaphragm controlled valve is placed on the steam line used for heating the spray water, and the lever diaphragm is connected to a damper which controls the relative amounts of air taken from the outside or returned from the building by the humidifying apparatus.

A small amount of compressed air enters the instrument at F, passes into the chamber, M, through the air valve, E, out the pipe, G, to the diaphragm controlled valve and the lever diaphragm.

If the percentage of humidity is too low the depression of the dew point temperature below the dry bulb temperature will be too great, thus contracting member, A, or expanding member, B, so that the end of member, B, will be brought against the air valve, J, closing E and opening D, thus reducing the air pressure on the diaphragms and allowing more steam to enter the spray water or more warm air to be returned from the building, thus increasing the percentage of humidity.

If the humidity becomes too high, the reverse action takes place.

The pointer on the dial indicates the percentage of humidity for which the instrument is set. By means of a key, which fits the square nut in the center of the dial, the instrument is easily and instantly adjusted to control the humidity at any point desired.

The spring, L, is to prevent the member, B, from jambing the valve too hard on its seat, D, thus making it in a sense fool proof.

We are informed that one of these instruments installed in a silk mill has not been adjusted in any manner in eighteen months, and is controlling the humidity within two per cent. continuously.

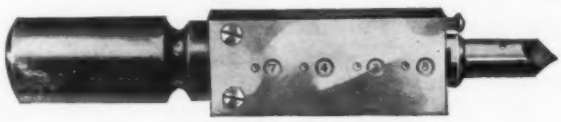
The Differential Thermostat is now in use in a number of cotton, woolen and silk mills, and the makers state that they have yet to receive a complaint regarding their operation.

The instrument is also adapted for controlling those humidifying systems of the spray head type which are placed direct in the room. When used in this connection the member, B, is used as a wet bulb element and A as the dry bulb element. A very simple device, not illustrated here, is used for saturating the wet bulb element, thus procuring a dry and wet bulb temperature control without requiring any wet cloths or wicking.

A REVOLUTION COUNTER.

This instrument, shown in the accompanying illustration, has recently been put on the market by Schuchardt & Schuette, 136 Liberty St., New York. It indicates the revolutions of a shaft by figures, as shown, thus avoiding the chance for error involved in the use of the ordinary counter on which the revolutions are indicated by a pointer on a dial. The instrument is easily adjusted for either right or left-hand revolutions by shifting a pinion at the back of the counter. Thus all revolutions, whether right or left-hand, are indicated in the same way. The mechanism of the counter consists of four wheels on the edge of each of which are the figures, 0 to 9. They are connected consecutively by 10-tooth gears. The unit dial is driven by the spindle and at the end of ten revolutions the number at the next counter wheel is increased by one. The other dials work in the same way, so that the counter indicates the exact number of the revolutions of the shaft during the time connection

is maintained. High speeds are thus indicated as accurately as low speeds. When the number of revolutions reaches 10,000 the counter automatically returns to 1. The instrument is 4 inches long and 1 inch wide.



A REVOLUTION COUNTER.

The handle is of hard rubber and the body of polished steel.

When desired the counter is set back to zero by means of screws at the back. The instrument comes in a plush-lined case and can be easily carried in the pocket.

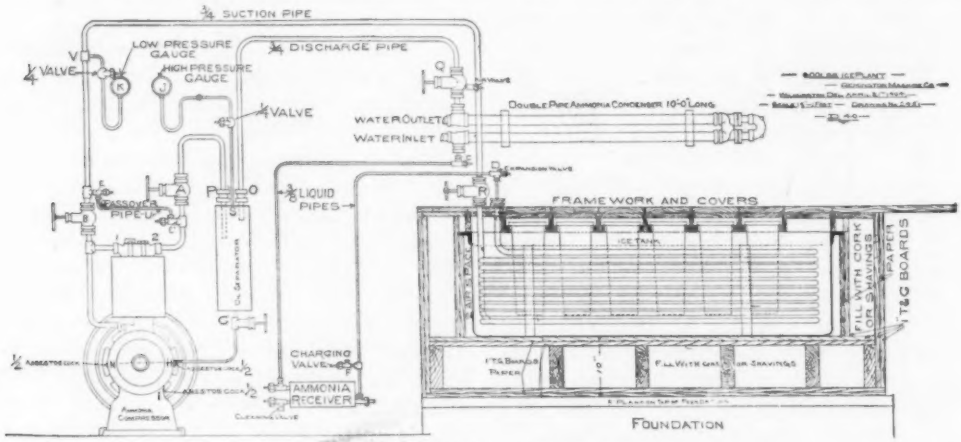
ICE PLANTS FOR TEXTILE MILLS.

Well within the scope of welfare work among the large textile mills, bleacheries and dye houses, is the installing of ice making and refrigerating plants, not only to improve on the old methods of dyeing and mercerizing the goods, but also to provide ice for giving the employes cool water to drink.

Many mills have already awakened to the fact that the money invested in a small ice making plant, which requires no extra help to operate, and but little extra power expended, will return a larger income than from most any other improvement, not only in actual cash returns from the increased amount of mercerized goods treated, stock of various kinds that are dyed and ice that may be sold, but also from a more contented and better satisfied class of employes.

The ice produced may be made from natural water supply, if it is pure, or a distilling apparatus may be added to furnish pure distilled water. The mercerizing and dyeing liquors can be cooled direct from the machine, without the necessity of making ice except for drinking purposes.

The accompanying cut shows a complete small ice making plant, illustrates the installations furnished by the Remington Machine Company of Wilmington, Delaware, at prices ranging from five hundred dollars to five thousand dollars. This company has already installed a large number of these outfits for the purposes above enumerated, and will send catalogues and give full information to any who may be interested.



AN ICE PLANT FOR A TEXTILE MILL.

The census of cotton consumption and invisible supply on Aug. 31, 1908, includes 11,217,883 spindles out of an estimated total of 128,923,659 for the world.

AN IMPROVED CLOTH STEAMING MACHINE.

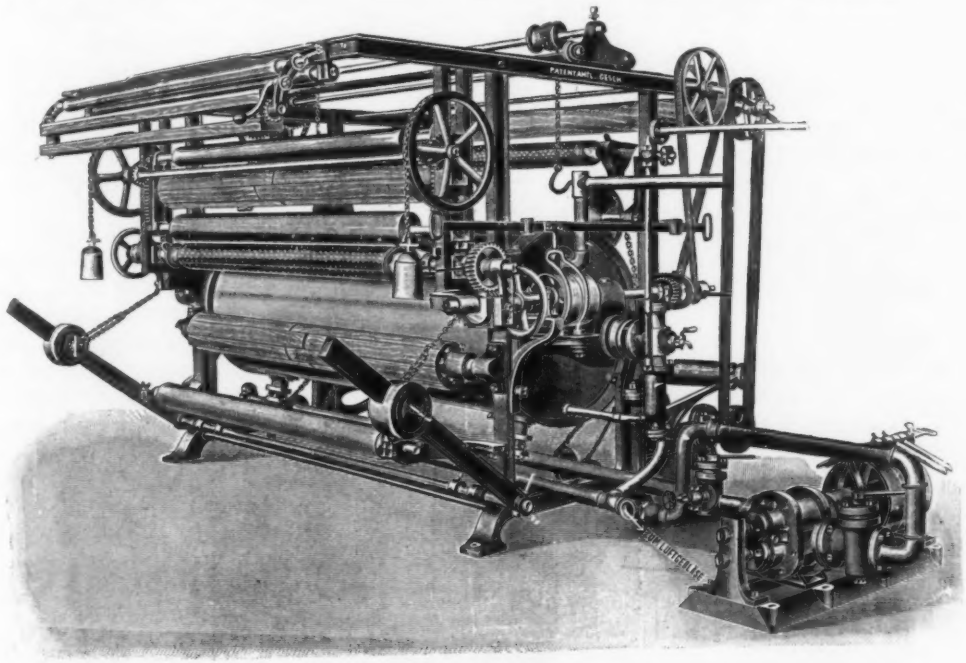
The wet process for giving a permanent luster and finish to woolens, and also for worsteds which are to be piece-dyed, gives the cloth a very thorough cleansing, thereby removing soap and other foreign matter which crabbing and scouring has not affected. This is of great importance in finishing piece-dyed materials and face-finished cloths where a good luster and uniform color are desired.

The steam luster imparted by this machine is, in most cases, superior to that secured by former methods, and is permanent as well. The accompanying illustration shows the machine by which these results are accomplished. The apparatus consists of an iron trough, with winding attachment on one side, and winding-off on the other, so that while one piece is being treated another is being wound, and the one just finished is being taken off the perforated roller upon which the cloth is wound.

Finishers are all familiar with the old-style methods of securing steam luster on face finished goods, by boiling:

1. By placing the roller flat in a vat and boiling by steam; afterward rewinding, to reverse the ends of the piece, and boiling again, or,

2. By boiling the roll standing in the vat on end, and later reversing position.



A CLOTH STEAMING MACHINE.

This apparatus is founded somewhat on both of these principles, with the idea of accomplishing the same results more thoroughly and by one operation, with great saving of time and labor. Air, steam and water are used, and are forced through the cloth and perforated roller, either from the inside to outside of roll, or vice versa, thus accomplishing more thoroughly the first of the old style methods described above. As the entrance or exit of air, steam and water is from both ends of the roller at once, evenness of luster is secured as by the old method described.

The apparatus may also be worked with compressed air, which serves, in cases where

water is scarce, in place of rinsing with cold water.

It is claimed that the production is over double that of the ordinary steaming apparatus. When desired the machine may be used for dry decatizing, for making permanent the press luster as well.

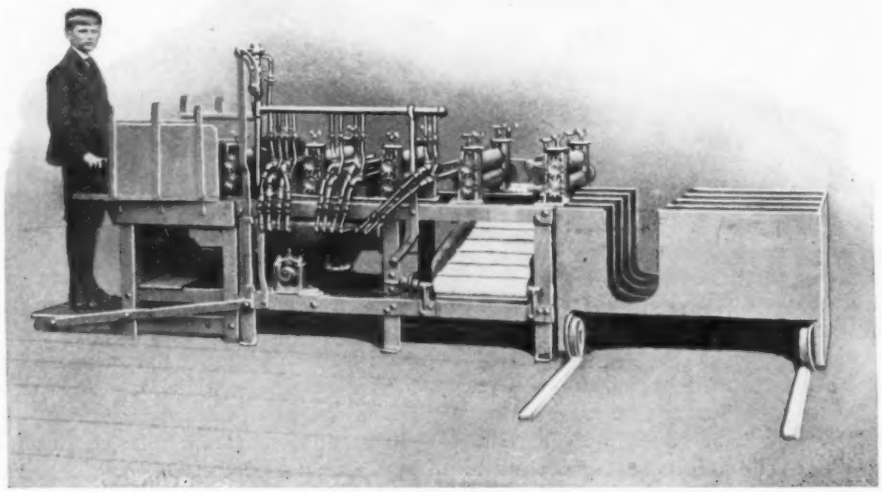
The name of the makers, Paul Klug Machine Works, pioneers in the manufacture of successful decatizing machinery, is a guarantee of the merit of this apparatus. The dry decatizing machine built by the same maker has given satisfaction in this country where it has been installed by the largest representative mills and finishing concerns.

L. H. A. Schwartz & Co., 53 State St., Boston, are the sole American and Canadian agents for both apparatus.

A HOSIERY SINGEING MACHINE.

The machine shown in the accompanying illustrations is built by the Automatic Machine Works, Reading, Pa., for singeing hosiery. It is the development of many years and is designed to save gas, hosiery, boards and labor, while at the same time doing perfect work. It is driven by an endless sprocket chain and thus all difficulties arising from the use of belts are avoided. There is no loss of time in repairing belts and all damage resulting from irregular speed or sudden stopping of the machine is avoided. An improved convex burner is used, each set of burners being fed separate with air and gas. It is claimed that this burner will save from 35 to 40 per cent. of the gas ordinarily used for singeing. The machine is built so that the flow of gas is automatically shut off when the operator steps from the platform, only three small pilot lights being left burning. The latter are controlled by a stop cock. In this way all waste of gas is made impossible. The machine is made for either gasoline or coal gas.

Another valuable feature is the positive stripper which prevents choking of the machine. Every board goes through and all the hose taken off by this stripper retain their shape, especially in the tops. The stripper is adjusted by right and left hand screws, no bolts or nuts being used. There are two sets of brushes running in the same directions as the rolls. The first set raises the nap, the second removes the carbon and the spark. The brushes are made fireproof and adjusted by right and left hand screws.

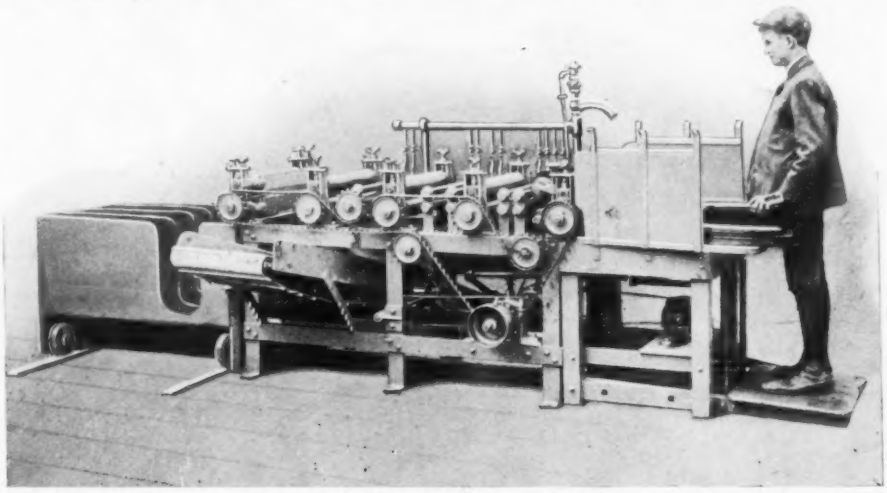


A NEW HOSIERY SINGEING MACHINE.

The pipe connections are all solid, no rubber hose being used.

The air is supplied to the blower in such a way that it is not necessary to install piping from the outside of the building and it is impossible for dust and lint to get into the fan. The five sets of rolls are all air cooled,

which is very important in high class work. The upper set of rolls adjust themselves automatically to any thickness of board. The table is built so that the boards can be fed by the top instead of the toe. After passing through the machine the boards are deposited in pockets, of which there are four. This arrangement saves the toe end of the boards. Only one speed is necessary for all classes of work. The builders claim that the machine will run continuously without any trouble whatever and the burning of the hose is made impossible. The hose after being stripped are dropped into the conveyor and carried away from the machine. This singeing machine is very easily operated, any intelligent boy being able to do the work. He feeds the boards to the rolls and the machine does the rest. The machines are built in two sizes, double and single feed, each in three sections. The capacity of the double feed is from 2,000 to 2,500 dozen per day; the single from 1,000 to 1,200 dozen per day.



A NEW HOSIERY SINGEING MACHINE.

The exports of cotton from the United States far exceed in value those of any other product. In the settlement of balances due by our country abroad our exports of cotton are indispensable, for we can rely upon the money from our exports of cotton every year, while no other product of the soil can be depended upon with the same certainty.

SHEDDING ON THE GOING PART.

Warp-shedding mechanisms are of various forms and construction, and are separate and distinct from the going-part or batten in the weaving of all classes of ordinary fabrics. In other words, the reed or sley and the shedding units perform their functions independently of each other. It has been considered necessary that the heald shafts, heddles, or, to use the American term, the harness, should have a fixed stationary position, —that is, no forward or reverse movement or one other than in a vertical line,—at a point immediately behind the extreme backward traverse of the going part.

The principle of this invention is, therefore, a new departure, and it possesses some sound elements of success in the weaving of fabrics simple in structure. The leading idea is shedding on the going part when this is nearing the back center, the picking being done when the shedding parts are momentarily stationary as the going part passes that point, and the weft beaten up on a closed shed or with all the warp threads in a line. The timing of the motions has been adjusted to acquire these three results in the relation named.

Views of the first loom constructed, which is to be seen at the Leeds University, are given in Figs. 1 and 2. The absence of any mechanism above the shedding units will, at

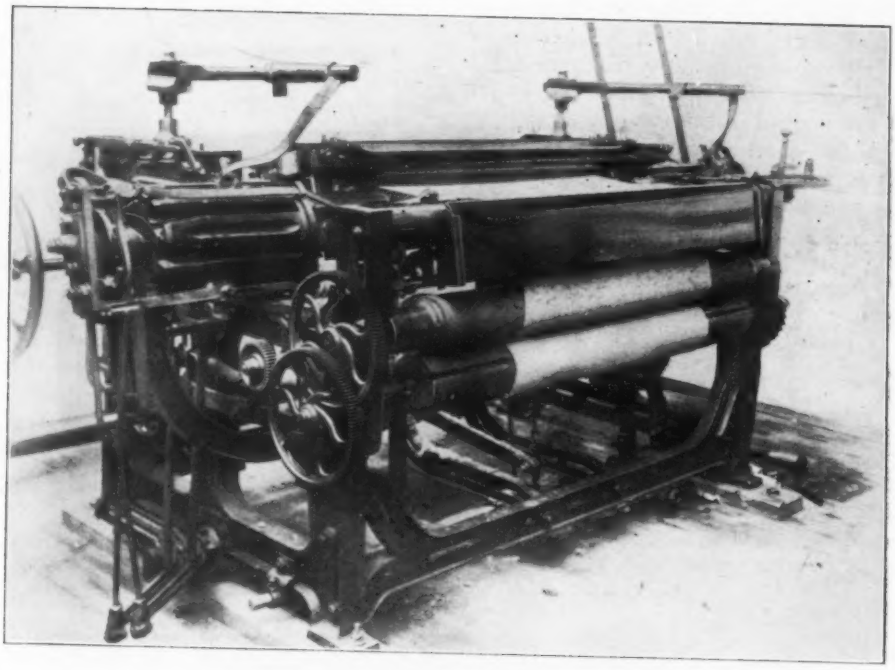


FIG. 1.

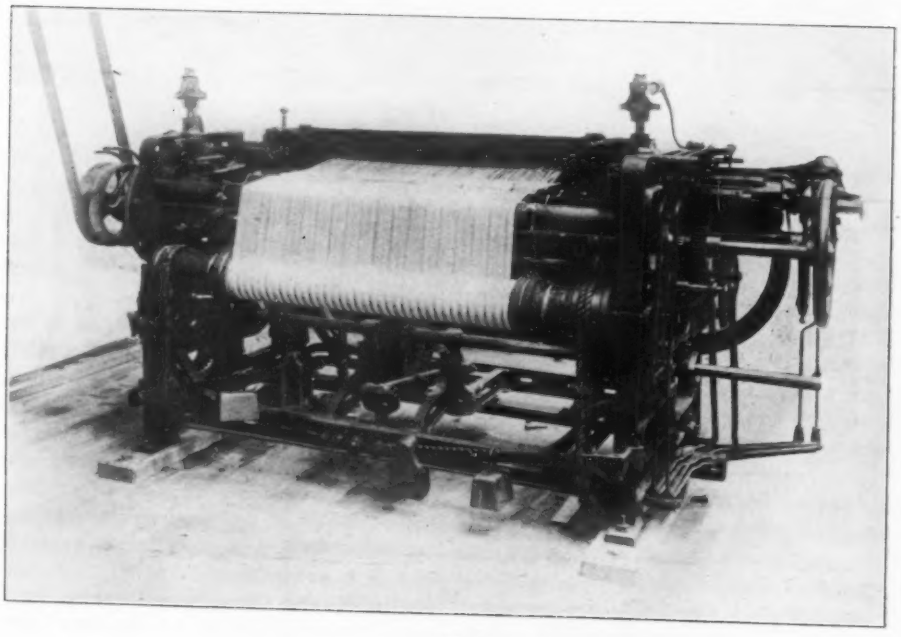


FIG. 2

once, be observed. The principle is applicable to a limited number of weaves, the loom illustrated being used for plain weaving, with two shedding units. In Fig. 3, a section of the shedding mechanism is shown. The tappet, A, actuates a treadle or lever, B, which by means of a chain, D, shafts, C, C1, rack and pinion connections, E, controls the lifting and lowering of the two shedding reeds, F. These are deeper and stronger than the usual sley. The front reed acts both as a shedding factor, and as a sley, but it might also be used for simply beating up the weft, as in the ordinary system of weaving.

The front and back shedding units are constructed alike, and are interchangeable, the eyes in the reed wires corresponding to the mails in the common healds. These are so formed that in passing a hook between

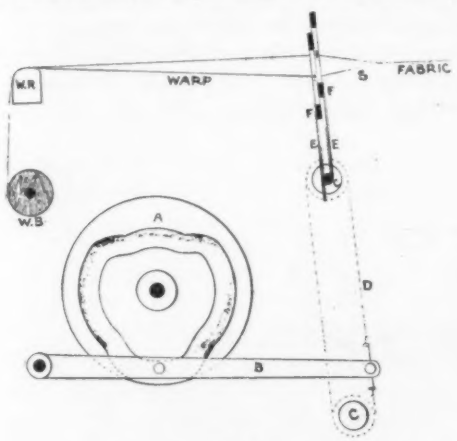


FIG. 3.

the reeds, it is guided naturally through the eye of the front or back reed, and the warp may be drawn in and sleyed at the same time.

A loom on this model, but underpick in action, has been built by Geo. Hattersley & Sons of Keighley, and exhibited at the Franco-British Exhibition.

Among the advantages claimed are the following:

(1) Greater simplicity of mechanism, and improvement in the design of the loom.

(2) The removal of all overhead mechanism, or of parts above the heald shafts, so that the warp is visible from the fell of the cloth to the warp rest, and the weaver can reach the threads at the back of the shedding units from the front of the loom.

(3) The shed is brought nearer to the fell of the fabric, so that the traverse of the warp threads in forming a shed is approximately half that in the ordinary loom for the same size of shuttle, causing less strain on the warp threads.

(4) No healds are required, and the reeds may be substituted and changed in any manner.

(5) The beating up of the weft is effected by the front of the eye, a portion of the reed which is not worn by the traverse of the shuttle, consequently, the reeds may be used for a considerably longer period.

(6) Healding and sleying take place at the same time, and constitute one operation, thus giving greater facility for repairing broken threads.

(7) Little adjustment is necessary: as the reeds are fixed by mechanical parts, they are easily and rapidly put into working position or removed, as desired. Clothworker.

THE DURBROW & HEARNE PINKING MACHINE.

Cutting samples with scalloped or notched edges is one of the best means of cutting samples to prevent fraying of the threads. Pinking, as the process is called, is used in a number of industries, such as the manufacture of millinery, hats, caps, skirts, waists, braids, gloves, upholstery, etc., and is especially useful in cutting reference samples of textile goods.

Fig. 1 shows the new and old way of cutting cloth samples. We are all familiar with the old way and it is the purpose of this article to call attention to the new way illustrated in the sample at the top of Fig. 1.

Samples cut with scalloped edges are much more attractive to the buyer and consequently help the selling of the goods. The process of cutting is inexpensive and saves practically all the cost of binding. There is also an important saving of time. The pinking machine manufactured by the Durbrow & Hearne Mfg. Co., 12 Wooster St., New York, is shown at Fig. 2. A long strip of

the width required is first cut by the machine and these strips are then cut crossways to give the size of sample required. These ma-

FIG. 1.

chines are equipped with adjustable tables which are always in proper position irrespective of the size of the cutter. This machine is provided with a spring pressure, which is so important in the pinking process. As a result the operator is always impressed with the easy running of the machine and the clean cut which is obtained, this being due to the spring pressure, which also saves wear on the cutter. With a rigid machine a variation of 1/1,000 of an inch will cause bad work in pinking, whereas with the spring pressure attachment the roller is held at all times against the cutter with exactly the amount of pressure required.

A LABORATORY FOR PUBLIC SERVICE.

In the January issue of the "Technology Review" there is an article by Arthur D. Little, the well known chemical engineer of Boston, pointing out the value and possibilities of the new Research Laboratory of Applied Chemistry recently established in connection with the Massachusetts Institute of Technology at Boston, through the generosity of Mr. Charles W. Hubbard. The general object of the laboratory is to increase the efficiency of industrial effort by carefully focused research in chemistry as applied to particular problems of actual practice.

The far reaching results of work of this laboratory are pointed out by Mr. Little, whose own experience in connection with industrial chemical work gives him a good insight into the possibilities of this work.

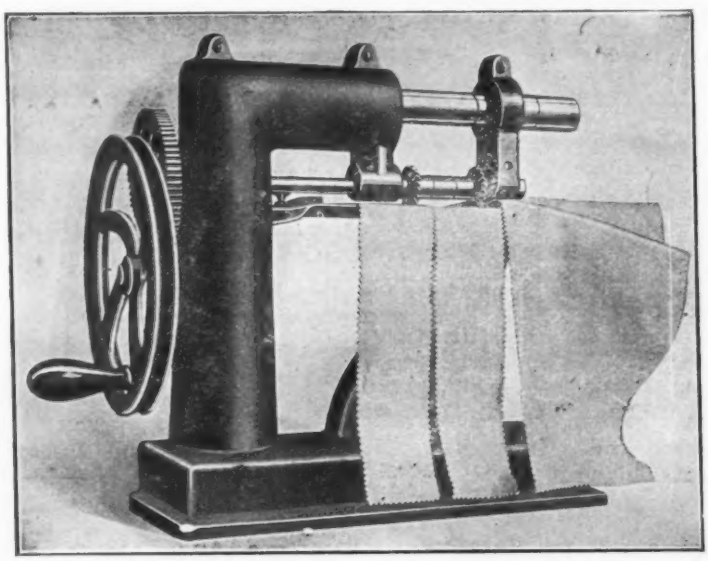


FIG. 2.

The close connection between chemistry and the arts and sciences is only just beginning to be realized and the help that the intelligent chemist can be to the manufacturer is now beginning to be somewhat appreciated in this country. In Germany it has long been recognized and its results are evident through the world in the tremendous expansion of the German industry. This article is well worth reading by any manufacturer who may be interested in the subject.

REORGANIZING AN OLD WATER POWER

There are doubtless many plants deriving considerable water power from old developments in which both volume and efficiency could be materially increased by a complete reorganization in accordance with the most recent practice. And not only may the power end be benefited thereby but the good results there possible of attainment may be considered in conjunction with relocation or reconstruction of the manufacturing building or buildings so as to secure the maximum of convenience and efficiency. A typical case of this nature is presented by a reorganization conducted under the supervision of Chas. T. Main, mill engineer of Boston, which successfully embraced both of these advantages.

The complete plant of the mill in question formerly consisted of three separate installations, each with its own individual dam, water wheels and buildings, all situated within a distance of about 1,200 feet. The head of water at each dam varied from ten to eighteen feet according to the changeable conditions. The improvements started with the elimination of the two down stream dams and the selection of the remaining up stream dam for service in the new development. By this combination a total head of forty feet was obtained. From the up stream location the water was carried through a steel penstock to a modern and comparatively small water wheel somewhat below the farthest down stream dam. At this point a new manufacturing plant was erected to take the place of the scattered buildings. In this were incorporated many improvements in the way of manufacturing equipment. The old buildings at the other dams were abandoned or used for storage purposes.

The advantages of the reorganization were evidenced in two ways: by the concentration and utilization of a better conserved water supply under a greater total head and by the grouping of the manufacturing buildings on a single building site.

The expense of upkeep of the three original dams was reduced and limited to that upon one, while the loss of head between them, inevitable under the old conditions, was eliminated. By selecting the up stream site for the single dam and carrying the water by penstock to the new site at a considerable distance down stream, the maximum head was utilized. It is evident that had the down stream location been selected and the same head provided at the wheels a new dam would have been required. This would have required extra strength to withstand the greatly increased pressure.

The combined power at the best was relatively small, but when divided into three units as in the original installation the friction losses were excessive. By the adoption of the new plan, it became necessary to keep only one dam tight in order to conserve the water, the excessive leakage through the other two was eliminated, as was also the amount passing by the water wheels during the night. In every way the new plant was more efficient and more easily operated. The power available at the new mill is now sufficient to run the entire plant several months of the year.

In Dundee a girl running a side of 72 spindles on a jute dry spinning frame makes $2.55 per week of fifty-five hours and pays $1.70 a week for board and lodging. Those running two sides make $3.89 a week. In similar jute mills in Massachusetts for a week of fifty-five hours a girl running one side of 72 spindles makes $6 and for two sides makes $9, and pays about $2.75 a week for board.

Dyeing, Bleaching, Printing, Etc.

DYEING OF HORSE HAIR AND HAIR CLOTH.

BY DR. LOUIS J MATOS.

The dyeing of these classes of material offer to the dyer certain difficulties, but with due regard to the physical properties of the fibers satisfactory results are to be expected. Horse hair, either from the mane or tail of the animal, is, in comparison with wool, much coarser in texture and very wiry. Parallel dyeings made with wool, using the same dyestuff, show distinctly that the horse hair takes up the coloring matter much more slowly than wool, and also manifests a lack of affinity for it, which causes a considerable modification of the process, in order to give to the hairs the maximum depth of shade desired while at the same time retaining the proper qualities of the fibers for subsequent working.

To dye such hair satisfactorily requires that it should be previously cleansed of all adhering grease and dirt, the presence of which prevents the dyes from properly penetrating the fibers and producing level shades The cleansing is most satisfactorily carried out by immersing the bundles of hair in dilute solutions of soap and sal soda, heated to about 125° F., and worked continuously so that the scouring liquors may circulate in and around all the hairs in each bundle. This scouring process may require from 1 1/2 to 2 hours, which may appear to be a long time in comparison to the usual time for scouring wool, but this time is necessary on account of the weakness of the solutions and the form of the bundles. From the scour vats, the bundles of hair are taken and washed thoroughly in running water to remove all excess of soap and alkali, when the hair is ready for dyeing.

Hair dyeing should progress at as low a temperature as possible consistent with a proper absorption of the color from the dye bath, which for the usual run of acid dyes may be about 175° to 190° F. Actual boiling is not necessary nor desirable. Circulation of the dye liquors must always be maintained from the commencement of dyeing to the end of the operation. Owing to the peculiar tendency of horse hair to curl and become "springy" when dyed loose, the necessity of keeping it tied up in bundles or else kept straight by other means is at once apparent.

As most of the hair used in manufacturing is dyed black, it may be interesting to note that the well known bichromate of potash and argols mordant, and logwood finish were the means of obtaining the intense brilliant blacks so much desired in this class of goods. As progress was made in the production of blacks of artificial origin, equaling the logwood shades on this material, it was but natural for the dyers to adopt them on account of their greater simplicity of application. Dyeing the hair black, in a separate operation, however, left the warps of the cloth to be dyed also separately, which was very undesirable, and this led to the various extensive trials with the diamine colors, having in view the dyeing of the grey hair-cloth in one bath, the results of which are highly successful, and have materially simplified its manufacture.

Hair cloth is conveniently dyed with the diamine colors in machines similar to jiggers, except that the cloth travels up and down several times through the hot dye liquor, the passages being repeated two or more times until the cloth has been dyed sufficiently. Colors can also be dyed in the same manner, and as a general rule in much less time.

Dyeing of the hair alone requires that the dye bath be so arranged as to accommodate the bundles of hair, at the same time preserving its natural straightness. The dye liquor is made up with a suitable quantity of color, to which is added the necessary amounts of both sulphuric acid and Glauber's salt. The

line of colors adapted to this work may conveniently include the following well known types:

Fast Yellow S; Acid Yellow A T. Orange G G. Lanafuchsine 6 B. Brilliant Scarlets, Naphthol Red C and E B. The Formyl Violets. Cyanoles, Azo Wool Blue, Fast Acid Greens, the Naphthylamine Blacks, etc.

If large quantities of horse hair are to be dyed a particular shade, it has been found to be quite convenient to lay the loosened bundles of hair in layers on lattices in the dye kettle, pumping the dye liquor into it, and allowing the entire contents to remain at rest for several hours, during which time the color will be taken up completely from the liquor, provided a sufficient quantity of acid is present.

As a general rule exact matches are not required for this material, consequently the work of the dyer is less exacting than for other lines of work, but should they be required, the same method must be followed as for other material, although it will be frequently noticed that some batches of hair take the dye very differently from others, even to the extent that the shade on a single hair may be deeper at one end than the other. Of course variations of this nature are beyond the control of the dyer.

After dyeing, the hair should be allowed to cool down and then subjected to a thorough washing, after which it is either dried, or used wet in the loom if intended for cloth.

CAUSTIC FOR MERCERIZING.

Manchester, Eng., Dec. 11, 1908.

Editor Textile World Record:

Your informant, "Cromarty," must surely have had in his mind one little point which he forgot to cite, and without which his remarks as to the solution of caustic soda will be obscure. The worst way of dissolving caustic soda is to dump it into a vessel of water, allowing the solid to sink to the bottom. It will never dissolve in this way, and the reason is that the lower part of the water soon becomes saturated, but the liquid is so heavy that it lies on the bottom, preventing further solution, and does not mix with the water above. Constant stirring will effect solution, but this is a waste of power. We may attain our object by a simple and effective "trick." The solid should be suspended either in a basket or in its original drum, in such manner that while the water can gain access to the caustic, no lumps formed by partial solution can fall out. This basket or drum is hung just below the surface of the water in the dissolving vessel and merely left there until the forces of nature have done their work. A strong, almost treacly solution of the caustic runs out of the basket down to the bottom of the tank while the clear unsaturated water from the top of the vessel enters the basket or drum in its place, thus setting up a circulation which continues automatically until no trace of solid caustic remains. This method is simple, easy and efficient, while the old method is awkward, laborious and gives very unsatisfactory results.

J. H. Lester, M. Sc., F. I. C.

A PROCESS OF MORDANTING.

This process, recently patented in the United States by a German dyer, consists of mordanting textile materials with the aid of waste lyes from the manufacture of gallic acid, and gallaminic acid and containing small residues of tannic acid. Such lyes result from the conversion of the aqueous extract of the gall by hydrolytic separation by means of acids, or fungus or ammonia into gallic or gallaminic acid. The residual lyes which contain besides small residues of tannic acid, sugar and extractive substances of gall which it has not been possible to isolate and which cannot be closely defined, have hitherto found no industrial use. It has now been found that these waste lyes have the property of fixing chrome oxid on the fiber and obtaining true colors with mordant dyestuffs. These lyes, it is claimed, are adapted to replace entirely tartar, tartar substitute, lactic acid and lignorosin (calcium lignosulfonate), and in consequence of the cheapness of the waste lyes can be generally used.

Sulphuric acid forms a useful addition to the mordanting bath. Instead of chrome,

aluminium compounds may be used.

Example: 100 pounds of wool, yarn or piece goods is treated with 2 per cent. potassium bichromate, and 4 per cent. of waste lye, or 2 per cent. potassium bichromate, 4 per cent. of waste lye and 1 1/2 per cent. sulphuric acid. The animal fiber, well washed, is heated slowly to boiling point in the mordanting bath, is thoroughly washed and then dyed. The discharging of the dye from the mordanted fiber takes place in the same manner as with fibers treated with lactic acid or lignorosin. For instance there is obtained with 3 per cent. waste lye of 30° Be, 1 1/2 per cent. potassium bichromate and 1 1/2 per cent. sulphuric acid exactly the same effect as with 3 per cent. lactic acid, 1 1/2 per cent. potassium bichromate and 1 1/2 per cent. sulphuric acid.

ROW'S TUBE BATTERY FOR DYE VATS AND KEIRS.

In dyeing and bleaching certain classes of goods imperfections in the form of spots and stains in the goods are apt to result when the liquor in the vat or keir is heated by an open steam jet. This is due to the fact that oil and other impurities in the steam come in contact with the goods. The difficulty is obviated by heating the liquor by enclosed steam coils, in which none of the steam gets into the liquor, the latter being heated by contact with the hot pipes. One objection to heating by ordinary enclosed coils is the waste of steam. To remove this objection Row's patent indented tube shown at Fig. 4 has been invented. It has been in successful use in Great Britain for many years, the American agents being Danker & Marston, 247 Atlantic Ave., Boston, Mass., to whom we are indebted for the following account of this heating device:

It is found that a tube indented as shown at Fig. 4 has very remarkable heat-transmitting properties much in excess of the plain round tube from which it is formed. The reason for this may be difficult to state, but no doubt it has to do with the laws of heat transmission through surfaces or plates, in which one well-known fact is that an accumulation of condensed water, in the form of particles or globules, on the tube surface seriously interferes with the heat transmission (the conductivity of water being as 1 to 500 of copper). The break-up of the central core of the tube increases the velocity of the

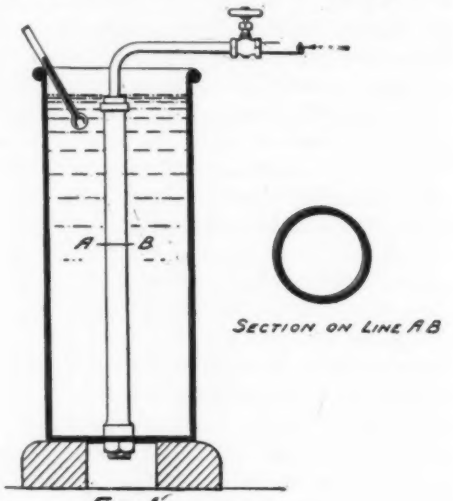


FIG. 1

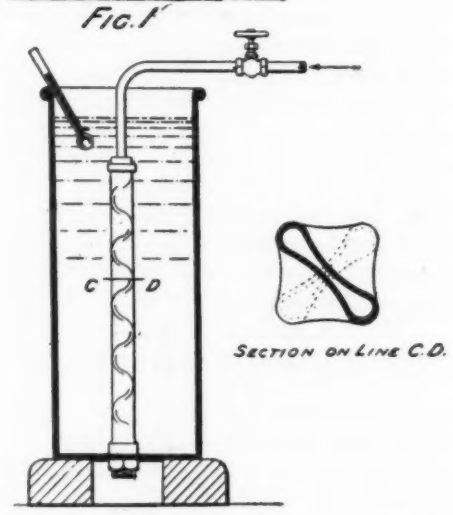


FIG. 2

steam through it, so tending to sweep off the particles and keep the steam in active contact with the copper or steel. Similarly the break-up of the exterior of the tube produces a series of impinging surfaces which cause a rapid exchange of fluid on the outside, and enables full advantage to be taken of the other well-known law on this subject that the transmission is greatly increased if

the fluid being heated is kept in rapid movement over the heating surface.

Whatever may be the theory by which it is explained, it is found that a tube indented in this manner has a heat-transmitting property remarkably in excess of exactly the same amount of plain round tube surfaces, as the following experiments clearly show:

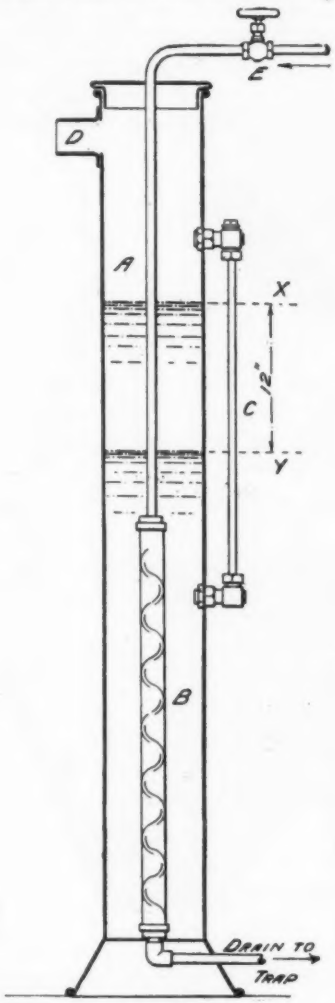


FIG. 3

Two pieces of solid-drawn copper tube, 1 1/2 in. internal diameter by 16s gauge, both 2 ft., 6 in., long (exactly one square foot of surface), are prepared by brazing on the ends suitable caps tapped for connecting pipes. One tube is left plain; the other is indented under the Row patent (shortening about 10 per cent. in the operation), but both still having the same amount of surface. Each tube is placed in a tank of water, as shown in Figs. 1 and 2, the outlet of the tube passing through the bottom of this tank and being left free and open to the atmosphere. Each of the tubes is served with steam at the top end at atmospheric pressure or thereabouts, care being taken that steam issues at the bottom equally in both cases, so that each tube has as much steam as it will take up but without pressure. The water in the vessel is agitated by paddles to get an average temperature throughout, and the following table, No. 1, shows the comparative efficiency of the two tubes:

Description of Test.	Plain Tube as Fig. 1	Indented Tube as Fig. 2
Temperature of steam to tubes	212° Fah.	212° Fah.
Temperature of water at start	48° Fah.	45° Fah.
Quantity of water in casing...	21 gals.	21 gals.
Quantity of surface in tube...	1 sq. ft.	1 sq. ft.
Time to heat to 180° Fah. at thermometer	106 min.	58 min.

To ascertain the efficiency of the Row Tube with high pressure steam, the apparatus illustrated in Fig. 3 was prepared, consisting of an iron casing open to the atmosphere in which was placed a length of 1 1/2 in. solid drawn copper tube with suitable caps brazed on, such tube having exactly one square foot of surface. Steam was supplied to the tube at 62 lbs. pressure and the condensation drawn off by steam trap. The quantity of water in the casing was 11 gallons. Experiment was first made with the plain tube, and, the results being noted, the tube was taken out and indented under Row's patent, and being replaced the experiment was repeated under precisely similar conditions. It is obvious that there was exactly the same amount of tube surface in both tests.

Description of Test.	No. 1 with plain Tube.	No. 2 with same Tube as in No. 1 but indented.
Area of heating surface in tube	1 sq. ft.	1 sq. ft.
Quantity of water in casing...	11 gal.	11 gal.
Temperature of water at start.	42° Fah.	42° Fah.
Time taken to raise to boiling point.....	11 min.	5½ min.
Time taken to evaporate 12 in. on guage=2½ gallons...	24 min.	11¾ min.
Steam pressure.....	62 lbs.	62 lbs.

The table No. 2 shows the comparative

efficiency of the two surfaces. The superiority of the Row surface is apparent, being as two to one of the plain tube.. It is, therefore, evident why such apparatus is more compact and relatively more efficient than is possible with plain tube surface.

These batteries are far superior to coils in every way and have been supplied in large numbers to many of the most conservative and largest firms in Great Britain for almost every kind of heating and boiling.

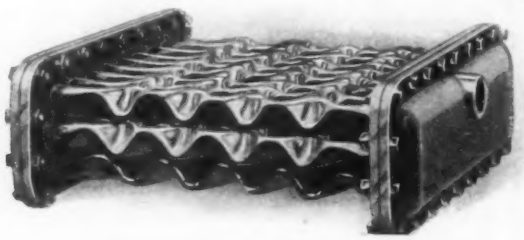


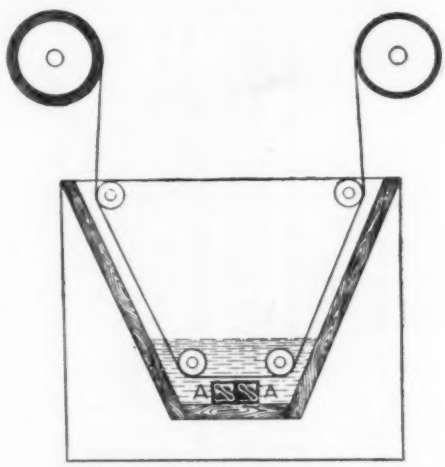
FIG. 4.

Any one who has observed the behavior of a steam coil in cold water will have noticed that the first few feet of the coil are specially active, the efficiency gradually falling off till the lower end of the coil is doing nothing at all. The explanation is that the lower end is largely occupied in passing the condensation from the first portion. This water hinders the transmission of heat, being comparatively a poor conductor, and thus the lower portion of the coil is almost useless. The remedy is to make the coil short and provide as many outlets as possible to get rid quickly of the condensed water. This results in the battery form, as shown at Fig. 4. If these tubes are indented under Row's patent, they are rendered still more efficient and the compactness and relative high efficiency is explained.

The batteries are usually made with cast-iron end boxes, wrought-iron tube plates and copper or steel indented tubes expanded into the tube plates and further secured by steel expanders driven into the tubes. The largest and most up-to-date dye-houses in Great Britain are fully equipped with Row's boiling battery in dye jigs. The advantage of using this device will at once be apparent to those who have read the foregoing description. It is of particular advantage in the dyeing of piece goods as all danger of variation in shade due to condensation of steam is eliminated.

Fig. 5 shows a long battery applied to a dye vat, avoiding the use of direct steam.

A very important feature which has appealed strongly to silk dyers and led to the equipping of many plants is the fact that the water of condensation from the battery can be collected and used as distilled water,



THIS VIEW shows the application of a long Battery to a Dye Vat avoiding the use of direct steam in boiling up, thus keeping the dye clean and preventing its dilution by condensed water.

FIG. 5.

which is a very important quantity in dyeing silks of delicate texture and shade.

Among the other advantages of the Row battery are the following: Condensed water from battery can be returned hot to boilers —the best of boiler feed. No mechanical circulation required.

The heating of bleaching keirs, Fig. 6, by direct boiler steam in the ordinary way is attended with serious disadvantage and loss where the steam is dirty, as is often the case when the steam is raised from water taken from some polluted pond or river. The cloth is seriously damaged with the dirt and the bleach has to be taken out for scouring, thus wastting both time and money.

To remedy this defect the boil is effected in the Row boiling battery by high-pressure steam acting in a group of pipes immediately under the vomit pipe. The boiler steam does not come into contact with the water in the keir, but boils up the water in contact with the tube surface, so creating a new and clean vapor from clean water in the keir. Obviously the efficiency of the device will depend very much upon the arrangement of the boiling pipes below the vomit pipe, and the more compact and concentrated the surface is the more active will be the boil. There is no violent tendency to pull the liquors back, as is the case with the outside methods of circulation. On the other hand, the liquor is allowed to gravitate through the fabrics in a gentle and most thorough manner.

The great saving in steam and fuel by the use of this tube battery is owing to the fact that there are no waste steam bubbles escaping to the atmosphere, as is the case when steam is blown direct into the liquor in the keir. Neither is heat wasted in the atmosphere as is bound to be the case where outside circulating devices are employed. All heat units transmitted to the heating batteries go to actual work as the heating surface is included in the keir itself beneath the grid, which carries the goods under treatment, so that all the heat conveyed is utilized within the keir.

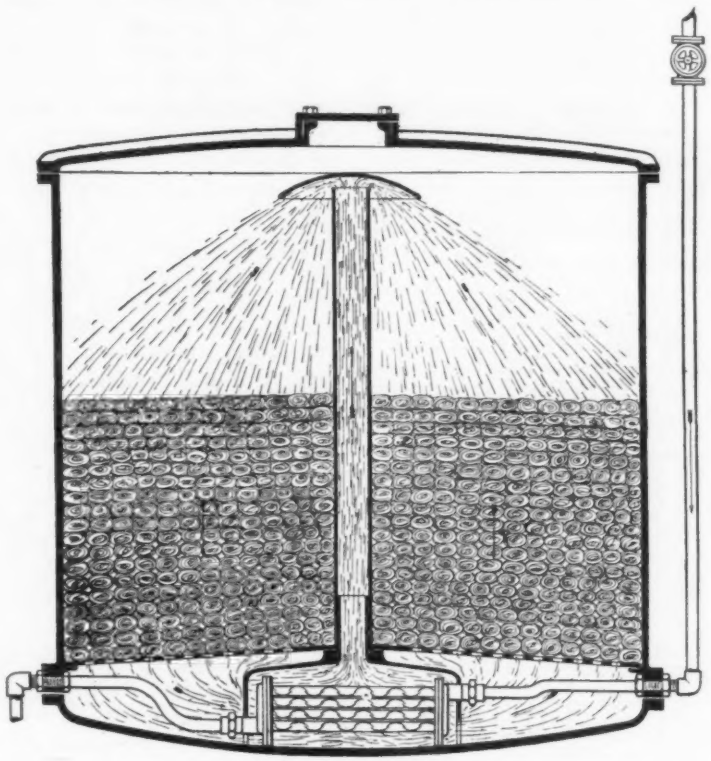


FIG. 6.

efficiency of the two surfaces. The superiority of the Row surface is apparent, being as two to one of the plain tube.. It is, therefore, evident why such apparatus is more compact and relatively more efficient than is possible with plain tube surface.

These batteries are far superior to coils in every way and have been supplied in large numbers to many of the most conservative and largest firms in Great Britain for almost every kind of heating and boiling.

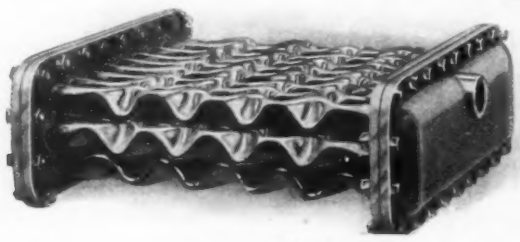


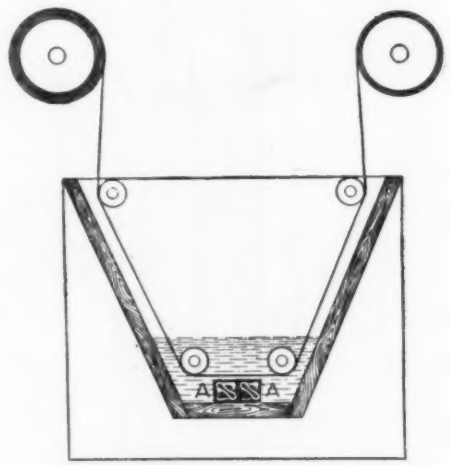
FIG. 4.

Any one who has observed the behavior of a steam coil in cold water will have noticed that the first few feet of the coil are specially active, the efficiency gradually falling off till the lower end of the coil is doing nothing at all. The explanation is that the lower end is largely occupied in passing the condensation from the first portion. This water hinders the transmission of heat, being comparatively a poor conductor, and thus the lower portion of the coil is almost useless. The remedy is to make the coil short and provide as many outlets as possible to get rid quickly of the condensed water. This results in the battery form, as shown at Fig. 4. If these tubes are indented under Row's patent, they are rendered still more efficient and the compactness and relative high efficiency is explained.

The batteries are usually made with cast-iron end boxes, wrought-iron tube plates and copper or steel indented tubes expanded into the tube plates and further secured by steel expanders driven into the tubes. The largest and most up-to-date dye-houses in Great Britain are fully equipped with Row's boiling battery in dye jigs. The advantage of using this device will at once be apparent to those who have read the foregoing description. It is of particular advantage in the dyeing of piece goods as all danger of variation in shade due to condensation of steam is eliminated.

Fig. 5 shows a long battery applied to a dye vat, avoiding the use of direct steam.

A very important feature which has appealed strongly to silk dyers and led to the equipping of many plants is the fact that the water of condensation from the battery can be collected and used as distilled water,



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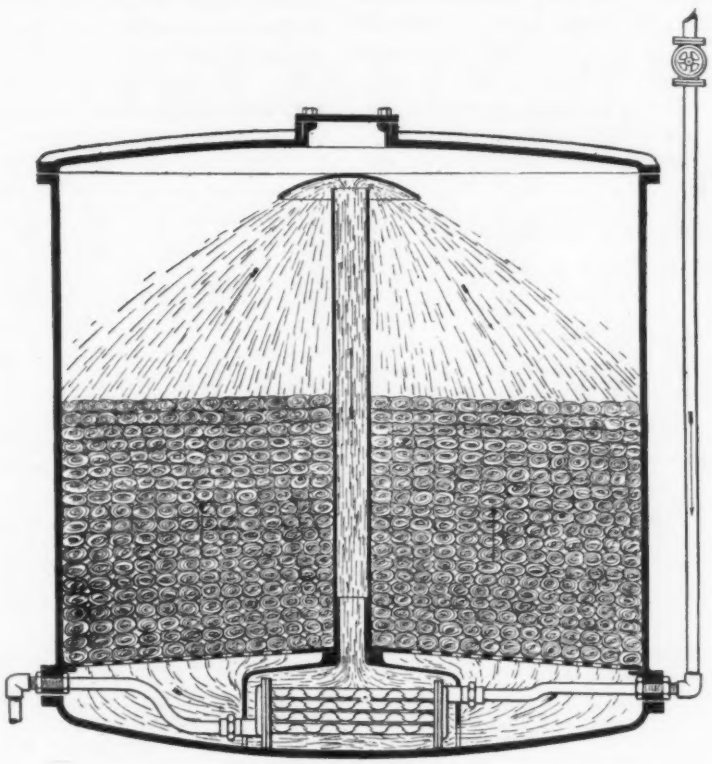


FIG. 6.

AN AUTOMATIC DYEING MACHINE.

The characteristic feature of a dyeing machine, invented in Germany and recently patented in this country, is a receptacle for the material, having a double bottom, the lower one being in the form of a trough and running to the form of a cone at the center. The upper one is perforated. Passages are provided which run up from the space between the bottoms, and lead into the receptacle. A circulation of the liquor is induced

FIG. 1.

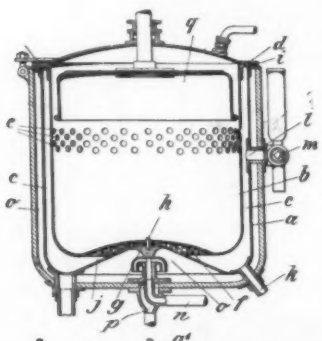
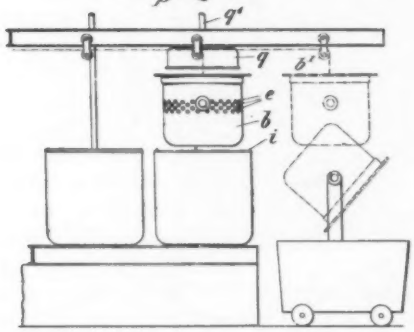


FIG. 2.



by raising and lowering a suction bell. Owing to the shape of the bottoms dead corners are avoided and a free circulation is ensured. Fig. 1 is a vertical section of the apparatus; Fig. 2, a view showing the receptacles in different positions.

In the form of the apparatus as shown, a second vessel, b, is inserted in a vessel, a, the cross section of the same being less than that of the vessel, a. The space, c, thereby created between the sides of the two vessels, serves as a passage for effecting the circulation of the liquid. The inserted vessel, b, is supported by a flanged ring, d, on the upper edge of the vessel, a. This ring likewise closes the passage, c, and thus prevents the liquid from spurting out while the machine is working.

The inserted vessel, b, is provided at the height of the normal level of the liquid with several rows of holes, e, through which the liquid flows through the passage, c, and the perforated bottom, f. The bottom, f, is curved from the sides inwards, as shown, and in the middle is arched upwards. The middle of the bottom rests on the support, g.

The inserted vessel, b, can be taken out and attached to the principal vessel, a, by means of lever clamps or the like.

By means of a pin, h, fixed to the support, g, and engaging in a hole situated in the middle of the bottom, and pins, i, provided above in the casing, a, and engaging in openings in the angular ring, d, the vessel, b, is held concentric in the vessel, a, so that the passage, c, is of the same width throughout. The vessel, b, is put in and taken out of the principal vessel, a, by means of a suitable lifting device.

The material to be treated is put into the vessel, b, and placed therewith in the principal vessel, a, after the bath has been prepared in the latter. The bath may also be prepared after the vessel, b, has been inserted. When fibrous material is treated a similarly shaped bottom made of narrow mesh wire gauze is also laid on the perforated bottom, f, in order to prevent the fibrous material from falling through the perforated bottom.

The bath is prepared in the following manner: Water under pressure is run into the vessel, a, through the pipe, k, and flows upwards through the perforated bottom, f, of the vessel, b, and the annular passage, c, until it reaches the overflow pipe, l. This pipe is then closed by the cock, m, and the supply of water stopped. The raising of the temperature of the liquid to boiling heat is effected by steam, which is conveyed through the pipe, n, into the steam chamber, o, from which the water of condensation that is formed is carried off through the pipe, p. The upper wall of the steam chamber presents a relatively large heating surface,

which quickly heats the liquid to the boiling point, especially if steam be let in at the same time as the water begins to enter. When the bath has been prepared, the suction bell, q, held in the raised position until the vessel, b, is introduced, is lowered into the working position and the machine started. By means of the lever device, t, connected with the eccentric disk, r, on the shaft, s, the suction bell is lowered and raised. When the bell is in its highest position, the lower edge thereof is always above the level of the liquid.

TWO-COLOR EFFECTS ON MIXED GOODS.

A process for dyeing two-colored effects on mixed goods, patented by a German inventor in the United States, is described by him as follows: "Excellent effects can be obtained if the material consisting of cotton and wool is subjected to a preliminary treatment with formaldehyde and tannin, and then dyed in a cold or lukewarm bath with sulfid colors. When proceeding in this manner the coloring matter is absorbed by the cotton only, the wool remaining colorless; the latter may then be dyed with acid colors to any desired shade.

The method of working is illustrated by the following example: Treat the material which should be well washed and may also be mercerized for one hour in a boiling hot bath containing 20 to 25 ounces formaldehyde and 2 to 5 ounces tannic acid per cubic foot of water, then rinse and dye in a cold or lukewarm dye bath prepared with the necessary sulfid color which has been dissolved with the addition of sodium sulfid and glucose. Prepare, for instance, a liquor with 20 to 30 ounces immedial black NNG conc. (katigene black, sulfur black, etc.), 20 to 30 ounces sodium sulfid crystals, 40 to 60 ounces glucose, 2 ounces soda ash, 2 ounces turkey-red oil, 5 to 20 ounces Glauber salt, 1 cubic foot water. Boil for about 10 minutes and allow to cool to 60° to 104° F. Dye at this temperature for about one-half hour, squeeze well and rinse thoroughly.

If it be desired to produce colored wool effects instead of white, the wool may be dyed with suitable dyestuffs before or after dyeing the cotton.

Keeping Dye Formulas.

Editor Textile World Record:

What is the best system of keeping a record of dyeing formulas for ready reference in the dye house? We would like to have you outline a system adapted to a dye house coloring raw stock, yarn and pieces. I have been keeping my formulas in small hand books, but find difficulty in selecting the right formula from the large number that have accumulated. Franklin (1026).

A form of keeping records in the dye-house which has always been found very handy is shown in the accompanying diagram. Palmetto.

A boss dyer or finisher should have a sys-

Dye-house Report

Date	Rec'd Lbs.	Dyed Lbs.	Style Shade	Dyed Lbs.	Style Shade	Dyed Lbs.	Style Shade	Dyed Lbs.	Style Shade	Bleached Lbs.	Style Shade	Total Raw Stock	Total Pieces	Total Yarns
Monday														
Raw Stock	2000	500	#1	500	#2	250	#3	250	#4	500	#41	2000		
Pieces	2000	400	A#10	400	B#11	400	C#12	400	D#13	400	E#42		2000	
Yarn	2000	400	#1	400	#2	400	#3	400	#4	400	#41			2000
Tuesday														
Wednesday														
Thursday														
Friday														
Saturday														
Total Rec'd	6000	Total for week ending Sept 19, 1908										2000	2000	2000

O. K. James Knox Supt. Henry Black Dyer

tem for keeping his formulas so that he can find the one he wants without hunting all through the book. The method I have adopted is very simple and it prevents the accumulation of useless formulas. I have a small hand book in which I enter all data either in ink or pencil. I have several books considerably larger which I keep in my desk and each successful formula I copy from the small book, using one page for each formula, with a footnote as to its merits and any other note I wish to add. For Example:

No. 7 Blue.

100 lbs. 2/16s yarn.

Sept. 28, 1907.

For Gardiner, Smith & Co.

3 lbs. Naphthogene Blue.
20 lbs. Glauber's Salts.
1 lb. Soda Ash.

Dye at a boil for 80 minutes. Diazotize in a cold bath.

3 lbs. Sodium Nitrate.
6 lbs. Sulphuric Acid.

Develop in a cold bath of

1 lb. Beta Naphthol.

Dissolved in

1 lb. Caustic Soda at 78° Tw.

Sample of shade: Good fast color. Clear dyed.

I have thus a record of the best formulas, alphabetically arranged and indexed. I allow a few pages for each shade so that any changes can be noted. The small hand book, or day book, I carry around with me. I have one for yarns and one for piece goods. When a new shade or new order is received, I stick a small sample of the goods on one corner of the formula book. If I have not room on the same page, I stick it on the back, and if there is any dispute as to the shade the original sample can be used for comparison.

If we get repeat orders, all that is necessary is to refer to the shade number, turn to the indexed page and the whole formula is before us. It is better to keep the light shades separate from the dark as they can be located easier.

It will take some time to start a book of this kind, but in the end a dyer will be repaid for the labor. Dulcimer.

From 50,000 to 60,000 tons of cotton are used yearly in Muelhausen, from a quarter to a third being Egyptian, and the rest American and Indian.

DYE RECIPES.

The following recipes appear in the Dyers' Supplement, which is issued each month by the TEXTILE WORLD RECORD. The Supplement contains the colored samples, dyed according to recipes given. The selection of samples is carefully made, and it is the aim to show shades which are of especial interest to the dyer, and which the requirements of the market demand. The Dyers' Supplement is a 16-page pamphlet, in convenient form for preservation. Subscription price for the Dyers' Supplement $1.00 per year.

Recipe No. 1.

Bluish Green on Worsted Yarn.

Anthraquinone Bluish Green B X on 100 lbs. worsted yarn. Prepare the dye bath with

4 lbs. Anthraquinone Bluish Green B X. (Badische Co., 128 Duane St., N. Y.)
20 lbs. Glauber's Salt.
3 lbs. Sulphuric Acid.

Enter at a temperature not above 120° F. and dye at a boil for one hour.

Anthraquinone Bluish Green B X possesses good fastness to light, steaming, acids, carbonizing, alkali, water, and rubbing. Its fastness to washing, milling, and perspiration are sufficiently good for most purposes.

Recipe No. 2.

Turquois Blue on Worsted Yarn.

Xylene Blue A S on 100 lbs. worsted yarn. Prepare the dye bath with

1 lb. Xylene Blue A S. (W. F. Sykes & Co., 85 Water St., N. Y.)
2 lbs. Sulphuric Acid.
10 lbs. Glauber's Salt.

Enter at, or near the boil and continue the boiling for 3/4 of an hour to 1 hour.

Xylene Blue A S is fast to chroming, and can therefore be used in combination with all chrome colors. Its fastness to light and fulling is also good. Because of its slow exhaustion it can be recommended as a level dyeing color which thoroughly penetrates even the heaviest fabrics.

Recipe No. 3.

Blue Black on Worsted Yarn.

Alizarine Blue Black G T on 100 lbs. worsted yarn. Prepare the dye bath with

1½ lbs. Alizarine Blue Black G T. (Badische Co., 128 Duane St., N. Y.)
15 lbs. Glauber's Salt (Crystals).
5 lbs. Acetic Acid.

Enter at 120° F. and dye at a boil for 3/4 of an hour, then add

2 lbs. Sulphuric Acid.

Boil until the bath is exhausted.

Cool the bath somewhat, and add

1 lb. Potassium Bichromate,

and boil 1/2 hour longer.

Alizarine Blue Black G T possesses good fastness to milling, stoving, carbonizing, steaming and light.

It will be found desirable on account of its low cost of working.

Recipe No. 4.

Red on Worsted Yarn.

X L Carmosine R on 100 lbs. worsted yarn. Prepare the dye bath with

3 lbs. X L Carmosine R (previously dissolved).
(Read Holliday & Sons, 11 Gold St., New York.)
10 lbs. Glauber's Salt.
5 lbs. Acetic Acid.

Enter lukewarm, raise to a boil and continue boiling until bath is exhausted. X L Carmosine R possesses penetrating and leveling properties of an unusual degree of excellence. Its fastness to light, washing and alkalies is very good.

Recipe No. 5.

Blue on Cotton Yarn.

Tetrazo Azurine G on 100 lbs. cotton yarn. Prepare the dye bath with

3 lbs. Tetrazo Azurine G.
(American Dyewood Co., 154 William St., N. Y.)
1 lb. Soda Ash.
25 lbs. Common Salt.

Enter at 180° F. and dye at a boil for one hour.

Tetrazo Azurine G is a desirable color owing to its superior brightness, and may be used either as a self color or for shading purposes. It dyes cotton and wool about the same shade. When after-treated with copper sulphate and potassium bichromate it is rendered very much faster to light and washing.

Recipe No. 6.

Khaki on Cotton Yarn.

Immedial Khaki D on 100 lbs. cotton yarn. Prepare the dye bath with

Starting Bath.

8 lbs. Immedial Khaki D.
(Cassella Color Co., 182 Front St., N. Y.)
8 lbs. Sodium Sulphide (Crystals).
8 lbs. Soda Ash.
40 lbs. Common Salt.

Standing Bath.

5 lbs. Immedial Khaki D.
(Cassella Color Co., 182 Front St., N. Y.)
5 lbs. Sodium Sulphide (Crystals).
1 lb. Soda Ash.
10 lbs. Common Salt.

Dye at a temperature just under the boil for one hour, keeping the material below the surface of the liquor as much as possible.

Then after-treat for 20 minutes to 1/2 hour, at a temperature of 140° F., in a bath made up with

3 lbs. Potassium Bichromate.
3 lbs. Acetic Acid.

Immedial Khaki D possesses excellent fastness to light and washing and also possesses good leveling properties.

Recipe No. 7.

Yellow on Worsted Yarn.

Cloth Yellow R on 100 lbs. worsted yarn. Prepare the dye bath with

2 lbs. Cloth Yellow R.
(Geisenheimer & Co., 189 Front St., N. Y.)
10 lbs. Glauber's Salt.
4 lbs. Sulphuric Acid.

Enter the material at 120° F. and bring slowly to a boil, and dye at a boil for one hour. Cool the bath to 150° F., then add

1¼ lbs. Potassium Bichromate,

and continue the boiling 1/2 hour longer.

Cloth Yellow R possesses very good fastness to light, acids, alkali, and water. It exhausts and penetrates very well.

Recipe No. 8.

Green on Cotton Yarn.

Columbia Green 3 B on 100 lbs. cotton yarn. Prepare the dye bath with

3 lbs. Columbia Green 3 B.
(Berlin Aniline Works, 213 Water St., N. Y.)
20 lbs. Glauber's Salt.

Dye for one hour at a temperature of about 200° F.

Columbia Green 3 B possesses fairly good fastness to washing, light, alkali, and acids, and will be found to be a good all round color for a direct cotton green.

Recipe No. 9.

Yellow on Worsted Yarn.

Fast Yellow R H on 100 lbs. worsted yarn. Prepare the dye bath with

3 lbs. Fast Yellow R H.
(Read Holliday & Sons, 11 Gold St., New York.)
10 lbs. Glauber's Salt.
5 lbs. Acetic Acid.

Enter lukewarm, raise to a boil and continue boiling until bath is exhausted. Fast Yellow R H possesses penetrating and leveling properties of an unusual degree of excellence. Its fastness to light and washing is very good.

Recipe No. 10.

Dark Green on Worsted Yarn.

Amido Dark Bottle Green B on 100 lbs. worsted yarn. Prepare the dye bath with

3 lbs. Amido Dark Bottle Green B.
(H. A. Metz & Co., 122 Hudson St., N. Y.)
20 lbs. Glauber's Salt.
3 lbs. Acetic Acid.

Dye at a boil for one hour, then exhaust the bath by adding

2 lbs. Sulphuric Acid.

Amido Dark Bottle Green B possesses excellent fastness to alkalies and perspiration, and its fastness to light is satisfactory for most purposes.

Recipe No. 11.

Yellow on Worsted Yarn.

Cloth Yellow G on 100 lbs. worsted yarn. Prepare the dye bath with

2 lbs. Cloth Yellow G.
(Geisenheimer & Co., 189 Front St., N. Y.)
10 lbs. Glauber's Salt.
4 lbs. Sulphuric Acid.

Enter material at 120° F. and bring slowly to a boil and dye at a boil for 1 hour. Cool the bath to 150° F., then add

1½ lbs. Potassium Bichromate,

and continue the boiling for 1/2 hour longer.

Cloth Yellow G possesses very good fastness to light, acids, alkali, and water. It exhausts and penetrates very well.

Recipe No. 12.

Blue on Worsted Yarn.

Victoria Navy Blue L on 100 lbs. worsted yarn. Prepare the dye bath with

4 lbs. Victoria Navy Blue L.
(Farbenfabriken Co., 66 Lafayette St., N. Y.)
10 lbs. Glauber's Salt.
4 lbs. Sulphuric Acid.

Enter at 160° F. and dye at a boil for one hour.

Victoria Navy Blue L penetrates well, dyes level, and possesses better fastness to light than the older types of Victoria Navy Blue.

Recipe No. 13.

Blue on Cotton Yarn.

Tetrazo Blue 3 B on 100 lbs. cotton yarn. Prepare the dye bath with

3 lbs. Tetrazo Blue 3 B.
(American Dyewood Co., 174 Purchase St., Boston, Mass.)
25 lbs. Common Salt.
½ lb. Soda Ash.

Enter at 180° F. and dye at a boil for one hour.

Tetrazo Blue 3 B gives shades of good fastness to washing. On union material the wool is dyed somewhat redder than the cotton. It is of especial interest for the dyeing of artificial silk.

Recipe No. 14.

Orange on Cotton Yarn.

Diamine Fast Orange E R on 100 lbs. cotton yarn. Prepare the dye bath with

3 lbs. Diamine Fast Orange E R.
(Cassella Color Co., 182 Front St., N. Y.)
2 lbs. Soda Ash.
20 lbs. Common Salt.

Enter at 180° F. and dye at a boil for one hour.

Diamine Fast Orange E R possesses excellent fastness to light, good fastness to washing, and stands the action of chlorine very well. It is well suited for the dyeing of half wool and half silk material.

Recipe No. 15.

Green on Cotton Yarn.

Columbia Green B on 100 lbs. cotton yarn. Prepare the dye bath with

3 lbs. Columbia Green B.
(Berlin Aniline Works, 213 Water St., N. Y.)
20 lbs. Glauber's Salt.

Dye for one hour at a temperature of about 200° F.

Columbia Green B possesses fairly good fastness to washing, light, alkali, and acids, and will be found to be a good all round color for a direct cotton green.

Recipe No. 16.

Red on Worsted Yarn.

Brilliant Sulphon Red B on 100 lbs. worsted yarn. Prepare the dye bath with

3 lbs. Brilliant Sulphon Red B.
(W. F. Sykes & Co., 85 Water St., N. Y.)
4 lbs. Sulphuric Acid.
10 lbs. Glauber's Salt.

Enter at or near the boil, and dye at a boil for 3/4 of an hour.

Brilliant Sulphon Red B is particularly fast to scouring, fulling, and light, and can be used in combination with other acid colors. It exhausts slowly, and can be recommended for level dyeing and good penetration.

Mill News.

Those interested in receiving early and more complete investigated information of projected new mills, enlargements, improvements, fires facts and gossip of the trade are referred to the Textile Advance News, issued weekly by the publishers of the Textile World Record, at $15.00 per year.

COTTON.

New Mills.

*Georgia, Manchester. Charter for the Manchester Cotton Mills will be secured in about 3 weeks. The organizers are now working on preliminary details preparatory to placing the work in the hands of the engineers. As it will take some time to prepare the plans and receive bids for the work, it will probably be some time during January or February before contracts for the building will be let. It is the idea of the promoters to have construction work commence as soon as possible. Other particulars have been given.

*Massachusetts, Boston. Statements, purporting to come from parties interested in the new Reciprocity Mills to the effect that the organization has been completed and plans for a plant to cover 65 acres accepted, also that construction will begin immediately, are incorrect. Mr. Eugene N. Foss, the leading figure in the project, has ample financial backing and is perfecting the organization with a view to early incorporation. Plans for the first of the four buildings projected have not been fully completed, however, and it is unlikely that anything will be done toward construction work until Spring.

New York, Buffalo. A concern known as the Preston Fabric Tire Co. has been organized and will start manufacturing fire hose and tire fabrics at once. The office of the concern is 1410 Niagara St., this city.

*North Carolina, East Monbo. For the past twelve months the Turner Mills Co. has been engaged in the construction of a dam, wheel house and mill foundations. The water power will be used for the new Turner Mills Co.'s plant and in the Monbo Mfg. Co. of Monbo. The wheel house is now practically completed and the wheels installed. The mill foundations are of concrete and are ready for the superstructure. According to present plans, the machinery equipment will be set in place about June, 1909, and the officers anticipate having the plant in full operation by September 1. The daily capacity will be about 2,000 lbs. fine hosiery and weaving yarns. The main building will be 80 by 300 ft., and the initial equipment 7,600 spindles, with complementary machinery. C. H. Lester of Monbo is superintendent of construction; W. D. Turner is president and treasurer, and C. M. Steele is vice-president.

*North Carolina, Laurinburg. It is officially announced that J. P. McRae, president of the Dickson Cotton Mill and the Scotland Cotton Mills of this place, will organize a company to build and operate a 15,000-spindle cotton yarn mill. Further particulars of the product have not been given out.

*North Carolina, Lexington. The Dacotah Cotton Mills have been incorporated with capital stock of $150,000 by C. A. Hunt, Jr., Joseph Montcastle and Joe V. Moffitt. This is the project in which C. A. Hunt, Jr., was previously reported interested. Construction work will begin in the spring, and the mill will be equipped with 10,000 spindles and 300 looms, for manufacturing cotton colored goods. A complete dyehouse will be equipped.

*North Carolina, Stony Point. Plans for the proposed cotton mill at this place in which J. W. Watts, of the Watts Manufacturing Co., of Liledown, is interested, call for a $70,000 company to build and operate a plant of 4,000 spindles to be driven by electric power. It is understood that bids for buildings will be asked about January 1, and machinery equipment is being considered now. They propose to manufacture 20s yarns.

*North Carolina, Zebulon. As reported in August the new cotton mill in which Archibald Meldrum is interested will incorporate early in 1909. This is a $100,000 project for the manufacture of cotton hosiery yarns. T. J. Horton of the Zebulon Hosiery Mills is interested.

Enlargements and Improvements.

Connecticut, Ansonia. It is reported that 26 looms are being added to the equipment of the Ansonia O. & C. Co.

*Connecticut, Danielson. Four hundred eighty new Northrop looms and 3,500 spindles to be installed in the Quinebaug Co. are to take the place of old looms and spindles that will be thrown out. As reported previously new electrical equipment will also be added.

*Connecticut, Montville. It is understood that all the light looms in the Pequot Mills, which were used for sheetings, have been taken out and heavier looms for weaving denims will be installed. We reported in November the purchase of this plant by Charles D. White of the Uncasville Manufacturing Co., Uncasville, Conn.

Connecticut, Versailles. Extensive additions have been made to the plant of the Totokett Mfg. Company and another story will be built to the main mill. A new storehouse, 40 by 80 ft., is under construction. Three hundred new looms are now being added, replacing old ones which have been taken out.

*Connecticut, Westport. The new dye house under construction for the Lees Mfg. Co. is 85 ft. long and 50 ft. wide, one story high. The equipment to be installed consists of 12 dye tubs, a hydro extractor and a Hurricane truck drying machine.

*Georgia, Columbus. The finishing department of the Eagle & Phenix Mills was too small for the amount of work required, therefore it was decided

to erect an additional story which is now practically completed. The work was done by the employes of the mill. All purchases incident to the building and equipment have been made.

*Georgia, Thomaston. In January, '09, construction work will be started on an addition to the Thomaston Cotton Mills. There will be space for 5,000 spindles and about 100 looms, and this equipment will be added as soon as construction work has been completed. Sheetings, ducks and 10s to 12s yarns are manufactured on 15,000 spindles and 288 looms. R. E. Hightower is president and buyer, and J. T. Ingram Jr., is treasurer.

*Georgia, Toccoa. Our report that the Toccoa Cotton Mills have leased the Capps Cotton Mills is correct. The plant has been leased for fifteen years and the capacity has been doubled, making it a 4,000-spindle mill. Hosiery yarns only will be manufactured. Both mills are now in full operation and being run as Mills 1 and 2 of the Toccoa Cotton Mills.

*Georgia, Trion. The improvements at the Trion Manufacturing Co. consist of replacing worn out looms with 292 Northrop looms. No other improvements are being made at this time.

Massachusetts, Fall River. About 9,000 spindles will be added to the equipment of the American Linen Co., space being provided by an addition to be erected and by the rearrangement of a part of the present equipment. This enlargement will represent an investment of $150,000 to $200,000. Contract for the lumber has been awarded to the Barker Lumber Co.

*Massachusetts, Fall River. Machinery contracts for the new mill of the Sagamore Manufacturing Co. have been awarded.

*Massachusetts, Lawrence. Further particulars of the new building to be erected for the Everett Mills are as follows: The new structure will be five stories high and 826 feet long. It will be 100 feet wide for 463 feet and the rest will be 75 feet in width. L. E. Locke of this city has prepared plans and will supervise the construction work. The present office building will be torn down and space will be provided for the main office in the new building, also for additions to the spinning, weaving and finishing departments. The proposed equipment is about 40,000 spindles and 1,200 looms. There is space for 8 new boilers in the boiler house, and these will be installed before the completion of the new mill.

Massachusetts Lawrence. The Atlantic Cotton Mills are making ready for additional looms and other machinery as reported would be installed some time ago.

Massachusetts, New Bedford. There is to be no addition to the buildings of the Taber Mills (Inc.). They are simply putting in about 11,000 more warp spindles. Capital stock is now $950,000. 24,000 mule spindles and 35,840 ring spindles and 1,048 looms are operated. Frederick Taber is president, William E. Kern is treasurer, John Sullivan is agent and buyer, and Obediah Butler is superintendent.

Mississippi, Stonewall. Improvements at the Stonewall Cotton Mills, including the installation of 164 new looms, have been completed.

New Hampshire, Manchester. While no official information has been given out by the company, it is understood that the Amoskeag Mfg. Co. will enlarge their gingham department by the erection of a building 700 ft. long, 100 ft. wide and five stories high, with wings at either end which will extend 200 ft. in length and which will be 100 ft. wide. The Board of Aldermen has voted to exempt from taxation for ten years a new mill which will cost between $1,000,000 and $2,000,000. Some departments of the Amoskeag Mfg. Co. are now running night and day.

*New Hampshire, Newmarket. The Newmarket Mfg. Co. has had plans drawn for changes in the plant, but have not decided on anything definite. It is rumored that a new 3-story mill will be erected in the spring. In November twenty 45-inch flat cards and twenty-six 62-inch looms were added.

*New Jersey, Newton. Four looms added to the equipment of the Standard Towel Co. makes a total equipment of 18 looms instead of 16 looms as reported in a recent issue. This is divided into 12 narrow and 6 broad looms. Towels, wash cloths, and similar goods are manufactured. W. H. Mellor is buyer.

North Carolina, Cliffside. The new building which was reported in March would be erected for the Cliffside Mills has been completed, and contracts for 20,000 spindles and 600 looms have been made.

*North Carolina, Cooleemee. Repairs following the fire in the Cooleemee Cotton Mills of the Erwin Cotton Mills Co. have been completed and manufacturing has been resumed in the entire plant. The picker room was destroyed by the fire, and the building erected to replace the old picker department is of reinforced concrete construction, and is practically fireproof.

North Carolina, Greensboro. Plans and specifications for a 2-story structure 105 by 135 ft., and a 1-story building 55 by 65 ft., have been prepared for the Revolution Cotton Mills to be used as a bleachery. This expansion will cost in the neighborhood of $40,000. The Revolution Mills manufacture canton flannel on 30,000 ring spindles and 800 looms.

*North Carolina, Mt. Airy. New equipment has been installed in the Laurel Bluff Cotton Mill, J. L. Brown, proprietor, to replace 2,400 spindles which have been taken out. We reported this improvement early in the year. 14s to 24s cotton yarns are manufactured.

*North Carolina, Shelby. In the addition being erected for the Shelby Cotton Mills they will install 6,500 spinning spindles, and 3,000 twisting spindles. They hope to complete the addition by March 1, 1909, and to begin the manufacture of 20s to 24s yarns, two ply, before May 1. J. C. Smith is treasurer and buyer.

North Carolina, Shelby. An addition, two stories high, 75 by 90 feet, is being erected for the Shelby Cotton Mills. A large number of new spin-

ning and twisting spindles will be installed. 20s to 30s two-ply yarns will be manufactured.

Pennsylvania, Chester. The Aberfoyle Manufacturing Co. is erecting a new boiler house to increase its power equipment.

Pennsylvania, Philadelphia. O. N. Falk & Co., who have been located at 1436 N. 9th St. for several years, have removed their plant to the Ontario Mills, 2d St. and Columbia Ave., where they are now occupying larger quarters. They manufacture cross stripe curtains on 12 looms and sell direct.

*Rhode Island, Albion. The Valley Falls Co. are enlarging their boiler house to give space for one additional boiler. Good progress is being made on the new 5-story mill on which construction work was started early in the year.

Rhode Island, Georgiaville. Six hundred Northrop looms will be installed in the new mill recently completed for the Bernon Mills. Machinery contracts have been awarded. The new building on which construction work was started early in the summer has been completed. This building replaces an old mill that was torn down.

Rhode Island, Warren. A small addition will be erected for the Warren Manufacturing Company, to be used for drawing-in processes.

South Carolina, Greenville. Heretofore the Camperdown Mills have dyed raw stock, but equipment will shortly be installed for dyeing on the long chain system, to take the place of the raw stock system. It is stated that all contracts have been awarded. Ginghams are manufactured.

Texas, Bonham. It is reported that the Bonham Cotton Mills will expend $30,000 for new machinery.

Texas, Cuero. It is reported that the Buchel-Rungel-Graves-Co. will double the present capacity of 5,000 spindles and 160 looms. Brown sheetings are manufactured. L. A. Carter is superintendent and buyer.

Mills Starting Up.

*Alabama, Eufaula. Donald Comer, representing his father, B. B. Comer, president and treasurer of the Avondale Mills, Birmingham, will be in charge of the Eufaula Cotton Mills, control of which B. B. Comer purchased several weeks ago as reported. It has been rumored that about $50,000 will be spent on improvements and while this has not been verified it is understood that the management is arranging for extensive improvements to be made after January 1. Manufacturing will be started next Monday.

*North Carolina, Concord. The Locke Cotton Mills Company has been incorporated with capital stock of $625,000, classified as $200,000 preferred, and $425,000 common. The new corporation takes over the Odell Manufacturing Company's plant, reported last week as purchased for $184,000 by George W. Watts, of Durham. J. Locke Erwin is president, treasurer and buyer. The parties interested with Mr Erwin are George W. Watts, who is vice president, Claude Ramseur, secretary. 2,400 ring spindles and 700 looms will be operated.

WOOLEN.

New Mills.

*Kentucky, Louisville. Frank S. Tuley is president of the Bradford Spinning Co. Thomas Williams is vice-president and general manager, and Warren M. Shallcross is secretary-treasurer. As reported previously, the company has capital stock of $25,000 and is operating 3,200 worsted spindles with preparatory machinery in the Eclipse Woolen Mills building at Garden and Green Sts.

Massachusetts, Boston. The Eastern Worsted Co. is the name of the new concern which is going to be started up in the old Penitentiary building. They will put in scouring, combing and drawing machinery and will make worsted tops, also do wool scouring and carbonizing. J. R. Neilson is among the interested parties. They are now installing a large boiler and have ordered most of the other machinery.

New Hampshire, Rochester. A new carpet mill may be started here by M. Boocock of Philadelphia. Further particulars have not been given out.

*Rhode Island, Providence. The Elston Worsted Co.'s mill in this city, reports of which have been given from time to time, will be run in connection with the Wallingford, Pa., plant, as stated in early reports. After January 1 the main office of this company will be in Providence. The company has capital stock of $50,000 and operates 4,000 spindles, Bradford system, and 100 looms. Arthur Elston is president and treasurer, Walter Cox is superintendent of the Providence plant and Ernest Elston is superintendent at Wallingford.

Rhode Island, Providence. A new worsted spinning company will be organized by A. Jowett, formerly manager of the Hodgson Worsted Co. of this city and Daniel H. Reese of Peace Dale. The selection of a location for the plant has not been made. The initial equipment will be 1,800 spindles.

Enlargements and Improvements.

*Connecticut, Thompsonville. The addition to the Hartford Carpet Co. will be three stories high, 270 by 110 ft., and will be used for the manufacture of Axminster carpets.

*Connecticut, Thompsonville. A contract has been awarded by the Upson & Martin Carpet Company for a new three-story building, 44 by 161 feet. An automatic sprinkler equipment will be installed.

Maine, East Madison. A new boiler will be installed in the Somerset Worsted Mills.

Maine, Skowhegan. The American Woolen Co. has purchased land for the erection of a one-story wooden storehouse, 160 by 30 ft., for the Anderson Mills.

*Massachusetts, Hudson. The Hudson Worsted Co., reported incorporated last week under the laws of Maine with capital stock of $175,000, takes over the business of the Hudson Worsted Co. of this place, formerly a copartnership between James L. Ballantyne and Henry T. Dyson. During the past year the business of this company has steadily increased; some of the time two shifts of

help have been given employment. At the present time an addition, 4 stories high, 20 by 60 ft., is under construction, but no new machinery will be required for the present. Henry T. Dyson has been elected president, James L. Ballantyne, treasurer, and Joseph A. Middlebrook, secretary.

*Massachusetts, Plymouth. Preparatory work for the erection of an extension to the plant of George Mabbett & Sons Co. has been completed and in a few days Ernest L. Sampson, who is contractor for the foundation, will begin work. The new space will be used for dressing and weaving. 43 broad and 8 narrow looms are operated at present on worsted goods for men's wear. They buy 2/10s to 2/60s worsted yarns.

*Massachusetts, South Barre. Construction work was begun Nov. 27 on the new mill for the Barre Wool Combing Co., Ltd. Barring unforeseen delays, the building will be completed and machinery installed by April 1, 1909. Worsted tops will be manufactured, giving employment to 100 additional hands.

Massachusetts, Ware. Two new boilers are being set up in the boiler room of the No. 4 Mill of the Geo. H. Gilbert Mfg. Company.

*Montana, Manchester. Referring to the reorganization of the Manchester Woolen Mills (Inc.), Mr. Sam H. Wood has been in Minneapolis and St. Paul, Minnesota, trying to effect reorganization of the company. It is hoped to provide sufficient working capital, beside adding to equipment, to put the plant on a good paying basis. If their plan is successful they will be in need of a quantity of nw machinery and supplies. They expect to begin full operations in the spring of 1909. Sam H. Wood is vice-president, manager, superintendent and buyer.

New Jersey, Camden. Forty-five new spooling machines have been added to the equipment of the Highland Worsted Mills to take the place of the old style jack spoolers.

New Jersey, Kirkwood. The Lakeside Carpet Company, who have been manufacturing rag carpets on 15 looms, are arranging for the increasing of their output by an addition of an equal number of looms for the manufacture of Smyrna rugs. The mill is located about a mile from Haddonfield.

New Jersey, Millville. It is reported that the Millville Carpet & Rug Mills, operating 11 looms on rugs, carpets and mats, are so rushed with orders that they are doubling the capacity of the plant. J. E. Smith is the proprietor.

*New Jersey, Trenton. Plans for an addition to the Princeton Worsted Mills Co.'s plant costing in the neighborhood of $20,000, have been completed. In September it was rumored that an addition was under contemplation as the company bought a tract of land adjoining the mill building. Later 24 new looms were added in the old plant and the report that a new mill would be erected was denied. John W. Nary is treasurer and buyer. Fancy and piece dye worsteds are manufactured on 100 looms.

Rhode Island, Greystone. Plans are under consideration by Joseph Benn & Sons, Inc., for a 5-story addition to the present plant, also an extension to the dye house. If these additions are built a quantity of new equipment will be contracted for. They are combers, manufacturers and spinners of Alpaca yarns.

Rhode Island, Mohegan. An addition two stories high is being erected to the Mohegan Mills, a branch of the Wanskuck Co. of Providence. The new space will be used for weaving. Between 30 and 40 new looms will be installed. The work is being done under the direction of W. P. Nichols, superintendent.

*Rhode Island, Thornton. Six cards and four combs will be added to the equipment of the Victoria Mills. The erection of an addition was reported recently. H. Hartley & Co., Inc., 275 Congress St., Boston, are the proprietors.

*Tennessee, Springfield. While the addition being built for the Springfield Woolen Mills Co. will have space for 3 sets of cards and about 20 looms, only one set of cards, one mule, and 12 looms will be added at this time. Good progress is being made on the improvement.

Vermont, Bennington. It is reported that Holden, Leonard & Co. have awarded contracts for new machinery costing in the neighborhood of $20,000. Fancy dress goods and suitings are manufactured. A. J. Holden is buyer.

*Wisconsin, Chippewa Falls. The Chippewa Falls Woolen Mill has not decided what additional machinery will be put in the new plant to be erected in the spring. They are interested, however, in new power house equipment, carding and weaving machinery. They manufacture light and heavy flannels, blankets, yarn and wool batting. Their office is at 19 East Central St., Chippewa Falls, Wis.

Mills Starting Up.

Iowa, Davenport. The Davenport Woolen Mills Co. have resumed manufacturing after an idleness of several months. The plant will be in full operation in a few days.

Massachusetts, Oxford. The plant of David N. Taft has started manufacturing for the first time since last May. Only one set has been started as yet but the other three sets will probably be started up within a few days.

*Rhode Island, Pascoag. The plant of A. H. & F. L. Sayles, known as Akela Mill, is employing 100 hands on worsted goods, 33 looms being operated. Fred L. Sayles is agent and buyer.

Vermont, Proctorsville. The plant of H. T. Murdock & Co., manufacturers of cassimeres and overcoatings on 12 sets and 80 broad looms has been started up.

Mills Shutting Down.

Canada, Montreal. The Montreal Woolen Mill Co. announce that they have decided to liquidate their business of manufacturing woolens on account of the impossibility under existing conditions to operate their mills profitably. Only repeat orders will be executed until the stock on hand is used. Tweeds, overcoatings, blankets and similar goods are manufactured on 6 sets of cards and 69 looms.

KNIT.

New Mills.

California, Los Angeles. The Wittenberg Company, importers and commission merchants handling hosiery, underwear, and gloves, with an office at 419 South Los Angeles St., are starting a knitting mill on ladies' hosiery and men's half hose.

*Maine, Topsham. Good progress is being made on the buildings for the new Max-Mar-Lan Knitting Co., which includes a piece dyeing department and steam power plant. As previously reported, equipment will be 20 knitting machines. Capital stock is $15,000.

Massachusetts, Boston. The Boston Hosiery Co., incorporated several months ago with capital stock of $25,000, is operating 17 knitting machines on children's worsted hosiery and have more orders than can be filled with the present equipment. Additional machinery will be added shortly and a line of mercerized goods added to the present output. All yarns are bought. John D. Pierce is president and buyer and Richard Freedman is treasurer and sales agent. Their address is 294 Harrison Ave.

Massachusetts, Dodge. Anson N. Hall is interested in starting a small knitting plant and would like particulars of machinery for knitting hosiery. He will probably locate in or near Worcester.

*Missouri, Kansas City. About January 15 the new Kansas City Knitting Co. will begin manufacturing with 20 knitting machines and 20 sewing machines. Boys', youths' and men's underwear will be manufactured from 10s to 30s combed cotton, and 18s to 30s wool yarns. The plant will be operated by electric power, and employment given at first to 50 hands. Marshall S. Walker and Samuel S. Walker of the Star Knitting Co., Grand Rapids, Mich., are the interested parties. The product is to be sold direct to the retail trade in this vicinity.

New York, Brooklyn. I. Schaeffer, in the knitting business several years ago, has again started up in the manufacture of sweaters at 33 Montrose Ave. He is operating 8 or 10 knitters and selling direct.

*New York, New York City. The Northwestern Knitting Mills, previously reported incorporated with capital stock of $7,500, have started manufacturing knit goods at 648 Broadway.

*North Carolina, Asheboro. The proposed industry in which O. R. Cox, of Thomasville, was reported interested, will manufacture men's, ladies' and misses' hosiery under the style of the Acme Hosiery Mills. A company will be organized with capital stock of $25,000, and a building erected early in 1909. A complete dyeing department will be equipped and it is intended to install a steam power plant. No contracts have been awarded. Mr. Cox may be addressed at Asheboro.

North Carolina, Oak Wood. A small knitting mill with an equipment of six machines has been started by Clarence E. Holman.

*Ohio, Cleveland. On Nov. 20 the new Scharfeld-Drake Hosiery Co. began the manufacture of half hose on 20 knitting machines. This concern was incorporated in November with capital stock of $10,000; M. B. Scharfeld is president and buyer, W. W. Drake is treasurer, and David Mullin is superintendent. The plant is operated by electric power and the product sold direct. They buy single 9s to single 14s cotton yarns and 2/20s to 2/30s mercerized. They are interested in further machinery equipment and supplies.

*Pennsylvania, Allentown. Elmer Ostenbach and Herman Hildebrand of Rittersville, a suburb of this city, are looking up machinery for the manufacture of seamless hosiery with a view to starting up in that business.

Pennsylvania, Allentown. J. S. Thompson & Co. will start a new plant of 10 knitting machines under the style of the Peerless Knitting Co. The capital stock will be $15,000. Ladies' and misses' vests will be the product. It has not been fully decided where the new plant will be located.

*Pennsylvania, Allentown. With R. C. Person as president and Robert D. Pearson, treasurer and superintendent, formerly with the Pearson Knitting Mills of South Bethlehem, the Sterling Knitting Co., with a capital of $5,000, have started up at 314 North Church St., in the manufacture of knit goods, women's, children's and misses' ribbed and fleeced goods of cotton. They are operating 5 body frames, 2 sleevers and 12 sewing machines, selling direct. They use 9s to 24s yarn on cones.

Pennsylvania, Allentown. W. S. Reed, now engaged in the knitting business, reports that he is forming a company with a capital of $50,000, to engage in the manufacture of cotton ribbed underwear. The plant will contain 50 knitters and be located in the western end of the town.

*Pennsylvania, Lititz. The new Lititz Hosiery Co. is not connected in any way with the Cocalico Mills of Ephrata. Twenty knitting machines, 4 loopers and 4 ribbers have been contracted for and John A. Bohler, the proprietor, states that he hopes to begin manufacturing by January 1. Men's half-hose will be the product. As soon as help can be educated, additional machinery will be contracted for. The plant will be operated by steam and gas power, and the product sold direct.

Pennsylvania, Nanticoke. Joseph West, formerly superintendent of the Black Diamond Knitting Mills, is starting up the Pennant Knitting Mills in this town with 25 Standard knitters, 7 ribbers, 5 loopers, and 2 Altemus winders. The plant will turn out novelty half-hose for men, 176-needle goods, using 14s to 50s cotton yarn in skeins. The power used is electricity and the production is sold through New York.

*Pennsylvania, Philadelphia. A charter has been asked for the Morris Hosiery Manufacturing Co., with Henry W. Maybaum, Rose Maybaum and William T. Hetzel as the incorporators. This company will operate the plant mentioned by us as being started by Harry W. Maybaum. They have leased quarters in the mill at the northwest corner of Mascher St. & Lehigh Ave., where they are arranging for the installation of 40 knitters and 6 sewing machines to be operated on 160-

needle half hose of cotton, using 14s, 16s and 40s yarn on cones, and selling the production of 200 dozens per day direct.

Pennsylvania, Reading. A new knitting plant just started at 601 N. 10th St., is known as the Continental Hosiery Mills, Ltd. They manufacture seamless half hose and women's seamless hosiery on 20 knitters, buying 16s cotton yarn.

*Tennessee, Bristol. Fifty knitting machines and 10 sewing machines are being operated by the Jonesville Manufacturing Co. in the branch plant at this place. They are working on 176-needle half-hose, the product being dyed and finished at the mill. This is a branch of Jonesville Manufacturing Co. of Jonesville, S. C. Carl Palme is superintendent and attends to the buying.

*Virginia, South Boston. The new Century Knitting Mill, reported incorporated in the last issue of the Advance News, has capital stock of $25,000, instead of $5,000, and a building is now under construction which will be completed and machinery installed in position for manufacturing by April 1, 1909. Hosiery will be the product. A dye house will be equipped and steam and electricity will be used for motive power. F. A. Lukin is president, treasurer and buyer. He is interested in machinery equipment and supplies.

Washington, Seattle. The Washington Knitting Mills is a new concern which has installed 4 knitting machines and is manufacturing full-fashioned high grade sweater coats and athletic goods. I. Fleissig is proprietor and Sol. Meyers is manager and buyer. Mr. Meyers was formerly assistant superintendent of the Saxony Knit Goods Co. of this city

*Wisconsin, Fort Atkinson. The Better Sox Knitting Co. has been incorporated with capital stock of $50,000. A. R. Hoard, Daniel A. Bullock and W. O. Hoffman are the incorporators. This refers to the hosiery plant which it was stated in our issue of December 5 would be equipped. They will have a daily capacity of 500 dozens of 136-needle seamless half-hose.

Wisconsin, Milwaukee. W. F. Hummel, formerly secretary and treasurer of the Standard Knitting Co. of this city is contemplating opening a new factory for making knit goods. Mr. Hummel may be addressed at 176 Lee St.

*Wisconsin, Milwaukee. A new concern, known as the Milwaukee Hosiery Co., is equipping a plant at 69-71 Ogden Ave. This refers to the new knitting plant in which we reported Mr. George Fettig as interested. Mr. Fettig was formerly connected with the Hole Proof Hosiery Co. George Mayo Knitting machines and German loopers will be installed for making men's and women's cotton hosiery.

Enlargements and Improvements.

Georgia, Rome. The enlargement of the Rome Hosiery Mills, reported as under contemplation early in 1908, will embrace the installation of 50 more knitting machines. Contract has been let for a new building 2 stories high, which will include a dyeing department, engine room and boiler room. According to present plans they will occupy the new mill about the 1st of April, 1909. The company has a surplus of $27,000, and this will be spent in improvements.

*Illinois, Chester. During the next twelve months, the Chester Knitting Mills will add machinery from time to time until the present capacity is doubled. The product is well sold up for all next year and with the present capacity the company is not able to take care of repeat orders from regular customers. This mill finishes the output of J. H. Richman & Co., Sparta, Ill., and Pinckneyville, Ill. In the spring a new, modern finishing department will be erected and equipped capable of handling 2,000 per day. The new building will be of brick and cement, 60 by 180 ft., two stories high.

Illinois, Chicago. The Royal Knitting Works are now operating, at 673 West Van Buren St., 15 hand machines and 8 sewing machines. They have contracted for 3 sets of automatic Grosser machines which will be delivered before March, 1909. The plant will be further enlarged in the spring.

*Illinois, Chicago. The new quarters of the Textile Manufacturing Co. are at 44-60 Institute Place. Additional knitting machines will be installed. This company manufactures ribbed underwear.

Illinois, Chicago. The new plant of the Home Knit Hosiery Co., John A. Sand, proprietor, is located at 914-936 West Chicago Ave., corner Western Ave. Additional equipment has been added and Mr. Sand is now operating seventeen knitting machines and four sewing machines on men's sweater coats and hosiery. The plant is operated by electric power. 2/16s to 4/16s worsted yarns are bought.

Iowa, Atlantic. It is reported that the Olsen Knitting Company will either start a branch plant at this place or remove the main plant from Elkhorn. Free rent, light and power will be given for one year by the business men of this place. The Olsen Knitting Co. has capital stock of $10,000 and manufactures men's, women's and children's sweaters and cardigans on 5 knitting machines and 6 sewing machines.

*Iowa, Des Moines. The Guarantee Hosiery Mill, recently reported started by R. B. Dennis and others, purchased the equipment of the defunct Iowa Knitting Co. They are considering an enlargement for manufacturing infants' hose in worsted and cotton, and will be in position to place machinery contracts in the spring.

*Iowa, Des Moines. The branch plant of the Des Moines Hosiery Mills at Boone, is in operation. The main plant in this city has been remodeled, electric power and individual motors installed, and other improvements completed. They report general conditions as very encouraging.

*Massachusetts, Northampton. The addition to be erected for the McCallum Hosiery Co. will be complete before spring. As stated in an early report, new machinery will be needed. This company manufactures men's and women's full-fashioned and children's and infants' silk hosiery. George B. McCallum is treasurer and buyer.

Massachusetts, Shelburne Falls. A new line of coat sweaters has been added to the products manufactured by the Orange Knitting Company.

*New Jersey, Paterson. A new building one story high, 125 by 50 ft., is being erected for J. J. Scharer, 625 River St. As previously reported, a corporation has been organized with capital stock of $25,000 under the style of the Paterson Knitting Works, to take over this business.

New York, Brooklyn. A report that the Central Knitting Co. has been burned out has been given wide circulation. This is entirely wrong as the Central Knitting Co. has not suffered any loss by the fire referred to in the reports. The fire broke out on the top floor of a 6-story building owned by Mr. A. Mueller, proprietor of the Central Knitting Company, but the factory of the knitting company is in an entirely different building, adjoining the one which was burned. The Central Knitting Co. has had a very successful season, working overtime nearly all the year. They make a fine line of men's, ladies', misses', boys' and children's coat sweaters in medium and high grade. Owing to the increased demand they have closed contracts for additional machinery, and in the course of a few weeks will make an extensive enlargement of the plant for making particularly fine gauge sweater coats.

New York, Ilion. The Sterling Mills are preparing to add another set of cards. Sweaters are manufactured on two sets of cards and 20 knitting machines.

*New York, Port Leyden. Ten new knitting machines will be installed in the addition being erected for the Port Leyden Knitting Co. The new addition is 35 by 50 ft., 3 stories high. This company has capital stock of $10,000. G. D. Vincent of Utica is president, Henry M. Love is treasurer, and J. C. Fogarty is superintendent and buyer. They manufacture children's knitted waists on an equipment which will be 20 knitting machines and 70 sewing machines when the enlargement is completed. Clift & Goodrich, 74 Leonard St., New York City, are the selling agents.

New York, Syracuse. An addition, two stories high, 35 by 60 feet, is being erected to the bleachery of the Oak Knitting Co. Contracts for necessary equipment have been awarded.

*New York, Utica. Within a month the addition being erected for the Mohawk Valley Cap Factory will be completed. They do not, however, contemplate the addition of any machinery at the present. The building is intended for cotton picker, picker house and storage room.

*North Carolina, Scotland Neck. Reports that the Scotland Neck Cotton Mills will increase the capital stock to $250,000 and erect a new building are erroneous. They are, however, making some improvements which will cost in the neighborhood of 7,500. The company manufactures hosiery and ribbed underwear. A. McDowell is president, W. H. Powell is vice-president, and J. S. Bowers is secretary and treasurer.

*North Carolina, Zebulon. As previously reported, the capital stock of the Zebulon Hosiery Mills has been increased from $10,000 to $18,000. The new capital stock will be paid in at once. It is the purpose of the company to add 50 knitting machines to the present equipment, which consists of 25 machines. Half hose only will be manufactured and the machines will be 176-needle cylinder. All goods will be sold in the gray and there will be no change made in this respect for some time. T. J. Horton is president and general manager. Western H Edwards is vice-president and secretary, and J. D. Horton is treasurer.

Ohio, Bowling Green. The Monarch Underwear Co. have purchased the brick factory built about three years ago for the Lefevere Gun Co. and is remodeling the interior preparatory to moving into the building about January 1. The Monarch Underwear Co. has grown rapidly since starting two years ago and this change is made necessary by their outgrowing their present headquarters. Men's union suits are manufactured exclusively upon 15 spring needle knitting machines. The knitting department is being operated day and night. After January 1 a quantity of new machinery will be added.

Pennsylvania, Adamstown. The Hope Hosiery Co. have installed quite recently one of the cold hosiery presses built by the Automatic Machine Works, Reading, of which George W. Stevenson is the proprietor. They report that it is giving great satisfaction.

Pennsylvania, Bath. The Bath Knitting Mills have installed more ribbers. They manufacture misses' and children's cotton seamless hosiery.

Pennsylvania, Catasauqua. The Goldsmith Hosiery Co., who have been operating two knitters and one ribber on seamless cotton half hose, are increasing the capacity of their plant, putting in eight knitters, one ribber and two loopers. They sell their goods in the grey and are buying 14s to 60s cotton yarns on cones.

Pennsylvania, Dorrancetown. The Werkheiser Knitting Mills, operating 9 knitters, 2 ribbers, 2 loopers on 176-needle half-hose, selling the production in the gray, are erecting a new concrete addition to their plant which will enable them to greatly enlarge their capacity. They expect to have it under roof and filled with machinery within a few months.

Pennsylvania, Dorrancetown. Drake's Knitting Mills are busy, running to full capacity. They are now operating 17 knitters, 3 ribbers, 1 looper, and 2 sewing machines on 176-188-needle half-hose and propose enlarging the size of their building in the near future. They sell direct and use 14s to 50s cotton yarn on cones.

Pennsylvania, Hamburg. Additions will be erected for the Hamburg Knitting Mills as follows: Addition to knitting department, 38 by 40 ft.; new bleachery, 68 by 30 ft., and a new boiler house, 16 by 45 ft. This will practically double the capacity of the plant.

Pennsylvania, Hamburg. The Gotham Underwear Mills have recently installed a Davis & Furber napper and also more knitters to enable them to fill their orders on women's cotton ribbed underwear. The plant is very busy and enough orders are reported on hand to run them until next Spring. C. Yeager is the superintendent.

Pennsylvania, Hazelton. The Hazle Knitting Mills Co. are very busy. They are manufacturing women's cotton ribbed underwear on 34 knitters, 12 ribbers and 50 sewing machines, and report that during the coming spring they will enlarge the plant by putting up an addition, 100 by 30 feet, into which thy will put new knitters which will enable them to increase their output almost 50 per cent. They sell direct.

Pennsylvania, Philadelphia. A five-story addition will be built to the plant of the Way Muffler Co., and machinery installed for manufacturing a new line of men's underwear and bathing suits, also for increasing the present output of coat sweaters. A dyeing department will be equipped in the new space. They expect to begin manufacturing in the new building by March 15, 1909. J. H. Way is proprietor and buyer.

Pennsylvania, Philadelphia. The Logan Hosiery Mills, which were started up in Germantown several months ago by Joseph Gee, will be removed to the Bromley Mills at the corner of Jasper and York Sts. New parties have become interested in the enterprise and their intention is to run it on a larger scale. The plant will contain at its initial operation 20 knitters, 3 loopers, and 2 sewing machines, which will be run on ladies' and misses' fine gauge hosiery, 200-needle goods, using 16 to 40 and 60/1 cotton yarns on cones. Until a suitable selling agent can be secured the production will be sold direct.

Pennsylvania, Philadelphia. A charter has been asked for the Triangle Hosiery Mills by Herman W Fernberger, Frank A. Barnett and Henry W. Scherr. This company, which will have a capital of $60,000, will take over and operate the knitting plant now run by Liveright and Davidson at Hancock and Oxford Sts. The plant, which contains 160 knitters operated on men's half-hose and women's and children's seamless hosiery, is very busy and it is the intention of the company to increase its capacity.

Pennsylvania, Pittston. Charles S. Sheppard & Son report they are busy on men's 188-needle seamless cotton hosiery and that they intend putting up an additional building and increasing their finishing department during the coming spring.

Pennsylvania, Plymouth. The Nottingham Knitting Mills, started here one year ago by John Price, with 8 knitters, are now owned and operated by Price & Austin. They report that the plant has been increased to 15 knitters, 2 ribbers, and 4 sewing machines and that they are arranging for the removal to a larger building where further addition and improvements will be made. They are manufacturing half-hose, which they finish and sell direct.

Pennsylvania, Schuylkill Haven. The Union Knitting Mills, of which Reed and Leininger are the proprietors, finding that the water in their artesian well, which they had recently bored, contained a great amount of iron, were compelled to put in a system for purifying and softening the water and they are at the present time engaged in installing a machine built by William Scaife & Sons, of 221 First National Bank Building, Pittsburg, Pa.

Pennsylvania, Schuylkill Haven. J. F. Bast of the Royal Knitting Mills has recently installed a Davis & Furber napper which he claims has been giving great satisfaction. He is also arranging for the erection of a 10,000 or 15,000-gallon tank as a reservoir for water used in his bleachery.

Pennsylvania, Slatington. The Crystal Knitting Mills, of which H. A. Muschlitz is the proprietor, is very busy on men's and women's cotton hosiery, making a specialty of "Maco" foot goods, for which they report a good sale, selling through New York. They have recently put in eight new sewing machines.

Pennsylvania, South Bethlehem. The Pearson Knitting Mills, 440 Seneca St., have been sold to Walker H. Clark, who is now operating the plant on children's wrappers and ribbed vests and women's ribbed vests of cotton. He reports that he is very busy and has in contemplation the removal of the plant to E. 4th St., at which location he will erect a new frame building, 16 by 40 feet.

SILK.

New Mills.

*Maryland, Hagerstown. The new silk mill will be known as Cromer Bros., not incorporated. The building will be completed and machinery installed for manufacturing about March 1, 1909. The building has a capacity of 15 looms, but it is not understood that this number will be installed at first. They will manufacture silk ribbons. The building now under construction is 36 by 120 ft., 3 stories high. Machinery will be operated by electric power. Chas. E. Cromer and Victor M. Cromer, formerly of the Hagerstown Silk Co., are the owners and managers. Chas. W. Cromer will do the buying and selling of the product. Machinery contract has been awarded.

New Jersey, Paterson. The Berwyn Silk Co. has been incorporated with capital stock of $25,000. Hiram Atkinson, 928 Madison Ave., this city and others are the incorporators. It is understood that a silk plant will be operated. The company has an office at 36 Morton St.

*New Jersey, Paterson. The new plant of Baxter, Kelley & Faust, which has been started in the Hamil and Booth Mill, has no connection with the Philadelphia Mill of this concern. Broad silks only will be manufactured. There is absolutely no intention to move the Philadelphia Mill to this city as previously reported. The new mill has equipment of 30 looms and started manufacturing Dec. 5. The New York office of this concern is at 496 Broome St.

*Pennsylvania, Allentown. Hunsicker, Good & Co. have installed 2 looms and auxiliary machinery on the top floor of the new building at 142-44 North 7th St., where they are manufacturing ribbons and selling direct.

*Pennsylvania, Macungie. The equipment of the new silk mills will be four or five looms to be operated by the electric power. The concern will be known as the Macungie Silk Co. Dr. D. D. Fritch, Charles A. Grauch and others are interested.

Enlargements and Improvements.

*Connecticut, New London. Work will be started within a few days on the building for the New London Wash Silk Company at the corner of Home and Hempstead Sts., lately purchased by them, as reported at the time. The alterations will include the laying of new floors, after which spooling machines will be installed. It is impossible to state when construction work will be begun on the new two-story dye house, 100 by 30 ft., which is to be erected. It is not probable this will be started before spring.

Massachusetts, Becket. An engine will be installed in the Berkshire & Beckett Silk Company's plant owing to the difficulties caused by low water during the past summer. The mill returned to full time a short time ago after a long period of curtailment.

Massachusetts, New Bedford. An addition will be built to the plant of the Crescent Manufacturing Co., manufacturers of staple and fancy broad silks and cotton mixtures on 42 looms. W. J. Oothout is agent and buyer.

FAILURES AND SUSPENSIONS.

Georgia, Hawkinsville. T. E. Lovejoy has been appointed receiver for the Hawkinsville Cotton Mills. The plant is shut down and will be sold at some future date. The Hawkinsville Mills have capital stock of $75,000 and manufactured sheetings on 3,000 ring spindles and 150 looms.

FIRES.

Massachusetts, Chicopee Falls. Fire broke out in the waste room in Mill No. 3 of the Chicopee Manufacturing Co. The blaze was confined to small space and there is little loss except to stock from water.

Mississippi, Water Valley. The Yocona Mills haev been seriously damaged by fire. Yarns, twines and similar goods were manufactured on 4,000 ring and 1,200 twisting spindles. C. E. Romberger is superintendent and buyer.

New York, Waterford. The Waterford Dye Works, James A. Ranney, proprietor, 79 third St., have been destroyed by fire, the loss being estimated at $16,000; insurance, $10,000.

Pennsylvania, Ephrata. The Ephrata Hosiery Mill Co.'s plant has been seriously damaged by fire. The loss is estimated at $10,000.

*Pennsylvania, Norristown. The rug plant of Abraham Hirsh Co., McKinley Ave. and Washington St., known as the Penn Art Square Mills, has been damaged to the extent of $30,000 by fire. The loss is fully covered by insurance. Mr. Hirsh advises that he expects to rebuild at once.

Pennsylvania, Philadelphia. Wm. Parson's cotton and woolen waste mill at 4033 Orchard St., Frankford, was almost destroyed by fire caused by a spark in a shredding machine. The loss is estimated at $8,000.

Rhode Island, Greenville. A fire in the plant of the Hygienic Fibre Co. caused a loss estimated at $5,000.

Rhode Island, North Scituate. A fire occurred in the picker room of the North Scituate Cotton Mill. The amount of damage done is not large.

Wisconsin, Menasha. The plant of the Fox River Valley Knitting Co. has been destroyed by fire with loss estimated at $70,000, fully covered by insurance. Men's seamless woolen and worsted hosiery, lumbermen's socks, mittens, and similar goods were manufactured on an equipment of 74 knitting machines and 8 sewing machines. It is understood the plant will be rebuilt.

FACTS AND GOSSIP.

Alabama, Lineville. The proposed cotton mill project in which M. B. Lewis of Birmingham, Ala., is interested has not assumed definite shape as yet.

Canada, Ontario, Parkhill. The Parkhill Woolen Mills Company has been incorporated with capital stock of $20,000. The new corporation takes over the business of the Parkhill Woolen Mill, N. Matheson, proprietor, manufacturer of blankets, flannels, and yarns on one set and one loom.

Connecticut, Danbury. A. E. Tweedy, proprietor of the Tweedy Silk Mill, manufacturers of silk hat bands and braids, is interested in a project for starting a 20-loom mill on broad silks. The matter is not in a tangible form yet, so nothing definite can be given out regarding it. The Business Men's Association is interested with Mr. Tweedy in the project and if a company is formed the stock will be owned by a large number of local parties.

*Connecticut, New Hartford. Upon further investigation of the report relative to the starting up of the Greenwood Mill plant, it appears that the project is still in abeyance. It has been proposed to equip the mill for spinning fine yarns, but as yet nothing has been done and the mill is empty.

Connecticut, Norwich. It is reported that parties whose names have not been learned, have purchased 15 looms of the Pequot Mills, and will start a weaving plant on cotton goods between Taftsville and this place, in what is known as the old Stone Mill.

*Connecticut, Plainfield. Benjamin F. Smith of Pawtucket, R. I., has received the contract for the enlargement of the Lawton Mills Corporation. A new weave shed, 150 by 227 ft., and a 3-story extension to the main mill will be built. Contract will be completed by Sept. 1, 1909.

Connecticut, Torrington. The plant of the Warrington Woolen Co. is being operated three nights a week overtime, there being more work on hand than can be done in the regular working hours. New lights have been installed in the mill as an experiment and if they prove satisfactory will be used in the new plant erected by this company.

Delaware, Seaforth. It is reported that Clarence Dohomo, cashier of the Sussex National Bank, is interested in a new concern to be known as the Sussex Flax & Linen Co., for the decortication of flax and spinning it into yarns under a new process. If the necessary capital can be secured ($100,000) the company will incorporate and commence operations at once.

*Georgia, Summerville. E. W. Sturdivant advises that nothing has been done yet toward organizing the proposed cotton mill company. At present he and his associates are trying to get subscriptions for the amount necessary to build.

Massachusetts, Auburn. It is not the intention of the Ettrick Mills to enlarge their plant at present. Rumors that an enlargement would be made at this time grew out of the decision at a recent meeting of the stockholders when it was voted to increase the capital stock from $250,000 to $500,000. The officers are as follows: Herman A. Metz, president; Chas. Fuehrlein, vice-president; Chas. L. Gagnebin, treasurer, and Walter A. Schumacher, secretary.

Massachusetts, Concord Junction. Fred. Bergeron of this place is planning to start a number of Knowles looms on worsted goods early in the spring of 1909. He has not decided upon a location for his plant.

*Massachusetts, Fall River. The report given last week of a new cotton blanket mill for this city refers to the project mentioned July 18. In the earlier report it was stated that E. S. Draper, W. Murray Crane and R. F. Haffenreffer, Jr., would each take $100,000 worth of stock in the company to be formed with capital stock of $500,000. The site near the Merchants Mfg. Co., off Pleasant St. is reported to have been selected.

Massachusetts, Fall River. It has been rumored that the Border City Mfg. Co. would erect a new mill, but we are advised that there is no truth in the report.

Massachusetts, Fitchburg. The Parkhill Manufacturing Co. has purchased 160,000 square feet of land on the Pratt Road, adjoining property already owned by the company. It is not intended to improve the land at this time.

Massachusetts, Housatonic. It is reported that a thread factory may be started at this place.

Massachusetts, Lawrence. It is reported on good authority that the Pacific Mills will shortly tear down boarding houses on the company's land to make room for a large new mill. Contracts for new power equipment have just been awarded.

Massachusetts, Lowell. The Massachusetts Cotton Mills will increase the area of land bordering on the Merrimack River, making it available for manufacturing purposes. It is understood that new plans for an addition will not be considered immediately, but undoubtedly at some time the mill will expand in this direction.

*Massachusetts, New Bedford. It is reported that Thomas Pennington, who was formerly overseer of weaving in the Pequot Mills, later known as the Mercer Manufacturing Co., but who has been employed more recently as overseer of weaving at the Taber Mills of this city, is interested in a new company to be known as the Pontain Knitting Co., New Bedford, Mass., and has purchased 11 looms from the Pequot Mill, which have been shipped to this city.

Massachusetts, New Bedford. There is no foundation for the report which has been given in many quarters, that Harding Whitman & Co. intend to build a new mill opposite the Nonquitt Spinning Company's plant.

*Massachusetts, New Bedford. Nothing new has developed in the organization of a new cotton manufacturing company by Abbott P. Smith. This project was being agitated several months ago.

*Massachusetts, North Adams. The recent sale of the property of the Arnold Print Works has been confirmed by the Court and the conveyance of the property to the reorganized corporation has been authorized, so it is expected that the company will emerge from the receivership within a few days. An outline of the plan of settlement with creditors was given several weeks ago.

Massachusetts, North Chelmsford. Beginning January 1, the Moore Spinning Co. will increase its force of wool sorters from 30 to 50, which would indicate that business is very much improved. Fine worsted yarn, from 12s to 60s, are manufactured on the Bradford system, on 30,000 worsted spindles.

*Massachusetts, Williamstown. It is understood that R. A. J. Hewat of the firm of Strong, Hewat & Company, woolen manufacturers of North Adams, is interested in the recent purchase of the Boston Finishing Works property by Geo. A. McDonald, treasurer of the North Adams Trust Company. At the time of the purchase it was stated that Mr. McDonald was acting for other parties.

Mississippi, Seminary. The Seminary Falls near this place on the Ocatoma River have been sold by John W. Watson and it is understood that water power will be developed as early as possible and that a cotton mill may be erected.

*New Hampshire, Goff's Falls. There was no damage to machinery in the recent fire at the Devonshire Mills. The loss was confined to buildings and stock.

*New Hampshire, Meredith. It is correct that J. Q. A. Whittemore, owner of the buildings and water power, formerly used by the Atlas Linen Corporation, has purchased the machinery, but he has no intention of engaging in the manufacture of linen goods, but rather will lease or sell the plant complete. The Messrs. Hall who were connected with the old Atlas Linen Company are reported to be negotiating a lease.

New Hampshire, Milford. It is reported that a night shift of help has been put on in the Middlesex Linen Company's plant. It is stated that this working schedule will most likely be kept up most of the winter.

*New Hampshire, North Boscawen. It is not probable that a woolen mill will be built if the water power on the Merrimack River near this point is developed as reported previously. R. W. Jones of Milton, who owns the water power and will develop it, states that they have no idea of building for some time.

*North Carolina, Sanford. As far as Robert L. Steele is concerned the project to establish a cotton goods bleachery at this point is indefinitely postponed. It was found difficult to interest sufficient capital in the enterprise. Mr. Steele is president of Steel's Mills, Rockingham, North Carolina.

Personals.

Albert Crabtree, overseer of dyeing at the Ray Mills, American Woolen Company, Franklin, Mass., has resigned to accept a similar position with the Southwark Mills Company, 8th and Tasker Sts., Philadelphia, Pa.

A. J. Pero has accepted a position as overseer of weaving and warping at the Penn Worsted Company, Hancock and Turner Sts., Philadelphia.

J. J. Barrett has succeeded J. W. Bound as overseer of weaving at the Calvin Mills, Charlotte, N. C.

R. L. Floyd has accepted the position as master mechanic at the Granby Cotton Mills, Columbia, S. C.

George Florence has accepted a position as superintendent of the Gate City Mills, Atlanta, Ga. He was formerly employed at the Georgia Textile Company.

E. K. Rhoben has accepted a position as overseer of spinning at Alexandria City, Ala. He comes from the Abingdon Mills, Huntsville, Ala.

George Medley has taken charge of the carding at the Majestic Mfg. Company, Belmont, N. C. He comes from La Grange, Ga.

J. W. Bounds has accepted a position as overseer of weaving at the Patterson Mfg. Company, Kannapolis, N. C.

D. E. C. Clough has accepted a position as overseer of spinning at the Paola Mills, Statesville, N. C.

J. V. Sutton has accepted a position as overseer of spinning at the Globe Mfg. Company, Gaffney, S. C.

H. W. Kimball has severed his connection with the Mt. Vernon Mills of the Consolidated Cotton Duck Company, Baltimore, Md., as superintendent.

Chas. H. Merriman, president of the Anchor Webbing Company, Woonsocket, R. I., has severed his connection with this company and it is understood that his interest has been disposed of.

G. Raisher, overseer of burling and sewing at the Springville Mfg. Company, Rockville, Conn., has resigned.

Jos. M. Doyom has accepted a position as general second hand of ring spinning, spooling and warping at the Danielson Cotton Company, Danielson, Conn. He comes from Glasgo, Conn.

John T. Hardman has taken a position as overseer of weaving at the Akela Mill, Pascoag, R. I.

S. S. Parker has accepted a position as superintendent of the Oswego Knitting Company, Oswego, N. Y. He was formerly employed at S. Prince & Company, Gomez, Palacio, Durango, Mexico.

Phillip Ganarsh has accepted a position as overseer of spinning at the Fuld & Hatch Company, Cohoes, N. Y.

W. H. Moss has accepted a position as overseer in charge of the rib knitting department at the Standard Hosiery Company, Philadelphia, Pa.

Francis G. Cuttle, overseer of dyeing at the Joyal Knitting Company, Montreal, Canada, has severed his connection with that company.

B. B. Reid, superintendent of the Ashley Mfg. Company, Newberry, S. C., is to have the management of the Hickory Hosiery Mills, Hickory, N. C. Mr. Reid has been superintendent of the Ashley Mfg. Company for the past three years and the mill was started up under his supervision and has run very successfully.

W. E. Bryson, overseer of knitting at the Ashley Mfg. Company, Newberry, S. C., has accepted a position as assistant superintendent of the Hickory Hosiery Mills, Hickory, N. C.

Stephen L. Shippey has accepted a position as superintendent of the Vermont Hosiery & Machinery Company, Bennington, Vt., succeeding J. M. Allen.

Chas. P. Mosher, overseer of spinning at the Standard Hosiery Company, Philadelphia, has severed his connection with that company.

James Williams has accepted a position as overseer of carding at the Troy Knitting Company, Troy, N. Y. He succeeds H. P. King.

Edward Rhylands has taken a position as overseer of the knitting department on the night shift at the Superior Underwear Company, Piqua, O. He was formerly employed at the Watson Mfg. Company, Paris, Ont., Canada.

Irving Pixley has accepted a position as second hand in the knitting department at the Superior Underwear Company, Piqua, O. He comes from Afton, N. Y.

Edgar Whitcher has accepted a position as boss knitter at the Reliable Knitting Company, Great Barrington, Mass. He comes from Derby, Conn.

B. S. Boozer, formerly overseer of the ribber and looper department at the Ashley Mfg. Company, Newberry, S. C., has been promoted to general overseer of the knitting at this mill

James Farley, superintendent of the Duofold Health Underwear Company, Frankfort, N. Y., has accepted a similar position with the Tempest Knitting Company of Perry, N. Y., succeeding Frank Parker.

Frank Parker has accepted a position as superintendent of the Oswego Knitting Company, Oswego, N. Y.

Nelson S. Brouillette has accepted a position as overseer of spinning at the Standard Hosiery Company, Philadelphia, Pa. He was formerly employed at the Brighton Mills, Passaic, N. J.

W. H. Roe, formerly with the Goldsboro North Carolina Knitting Mills (Inc.), as superintendent, is now with the Black Diamond Knitting Mills, Naubiecke, Pa., where he has succeeded Joseph West, who has gone into the knitting business for himself.

F. B. Rollinson has accepted a position as general manager of the Assawaga Company, Dayville, Conn., succeeding Angus Park. Mr. Rollinson was formerly employed at the Knoxville Woolen Mills, Knoxville, Tenn.

S. P. Servais has accepted a position as overseer of spinning at H. T. Murdock & Company, Proctorsville, Vt. He comes from New Bedford, Mass.

W. H. Buckley has accepted a position as superintendent of the Cornwall & York Cotton Mills, St. John, New Brunswick, Canada. He was formerly employed at the Standard Mills, Philadelphia, Pa.

A. J. Cox, who recently severed his connection with the French River Textile Company, Mechanicsville, Conn., as overseer of spinning, is now employed by the W. P. Curtis Company, manufacturers' supply house, Boston, Mass., as their representative. He is not representing a liquor concern on the road as has been stated.

Martin J. Nelson has accepted a position as overseer of finishing at the Davenport Woolen Mills, Davenport, Ia. He was formerly employed at the La Porte Woolen Mills, La Porte, Ind.

F. H. Maloney has accepted a position as overseer of finishing at J. O. Ballard & Company, Malone, N. Y.

Thos. Jennings, overseer of finishing at the Central Worsted Company, Central Village, Conn., has resigned to accept a similar position at the Akela Mill, Pascoag, R. I.

J. D. Buice, superintendent of the Gaffney Mfg. Company, Gaffney, S. C., has resigned on account of ill health. His successor is Dever Little, who has been promoted to the position.

Staney Smith has been appointed overseer of carding and spinning at the new Dunn Mfg. Company, Gastonia, N. C.

Edward Elsner, designer for the Fernrock Woolen Mills, Philadelphia, Pa., has severed his connection with that company.

Benjamin F. Hayes has accepted a position as overseer of weaving and designing for the Enfield Mfg. Company, Enfield, Mass. He was formerly employed at Collinsville, Mass.

John C. Werner, retiring superintendent of the Broad Brook Company, Broad Brook, Conn., was presented with a handsome parlor clock by the overseers. The presentation was made by B. F. Armitage the superintendent to succeed Mr. Werner.

J. M. Masson has been appointed agent of the Oneko Mills, New Bedford, Mass. He was formerly superintendent of the Blackinton Mfg. Company, Blackinton, Mass., and succeeds Lewis E. Anderson.

F. C. Robbins has accepted a position as overseer of mule spinning at the Manchaug Company, Manchaug, Mass. He comes from Waterloo, Quebec, Canada.

John J. Driscoll has accepted a position as overseer of carding and spinning at the Evansville Woolen Company, Evansville, Ind. He was formerly employed at J. O. Ballard & Company's mill, Malone, N. Y., but more recently at Winooski, Vt.

Herbert Winsor, overseer of the sewing and burling department at the William Tinkham Company, Harrisville, R. I., has severed his connection with that company.

B. W. Pinney has accepted a position as master mechanic for the Faatz-Reynolds Felting Company, Lestershire, N. Y. He comes from Sanford, Me.

Peter Costello, Jr., has accepted a position as overseer of finishing at H. T. Murdock & Company's Mill, Proctorsville, Vt.

Albert E. Wade, assistant overseer of carding at the Samoset Company, Valley Falls, R. I., has severed his connection with that company to accept a position as overseer of carding at the Queen City Cotton Mills, Burlington, Vt.

Albert Murphy, second hand in the spinning department at the Assawaga Company, Dayville, Conn., has severed his connection with that company.

Herbert W. Owens has been appointed agent of the Cocheco Mfg. Company, Dover, N. H., to succeed Chas. H. Fish. Mr. Owens was superintendent of these mills for a number of years.

John Burr, a resident of Stafford Springs, Conn., for a number of years, and employed at the Warren Woolen Company, has taken a position in their New York office.

Wilfred Blackburn, overseer of spinning at the Faulkner Mills, Stafford Springs, Conn., has severed his connection with that company and accepted a position at the Pawcatuck Mills, Potter Hill, R. I.

Henry Rogers, overseer of carding at the National & Providence Worsted Mills, Providence, R. I., has severed his connection with that company after nineteen years of service. The overseers in the different departments called at his home on Wisdom Ave. and presented him with a handsome watch as a token of their esteem and friendship. After the presentation an enjoyable evening was passed.

Wm. E. Keach, general superintendent of the Grant Yarn and Fitchburg Yarn Company, Fitchburg, Mass., has severed his connection with that company, and will retire from active business until his health is restored. It is reported he has purchased property in Danielson, Conn., where he lived some years ago and was employed at the Quinebaug Mills.

Emil De Witte has accepted a position as overseer of dyeing at the Knoxville Woolen Mills, Knoxville, Tenn. He comes from Woonsocket, R. I.

C. D. Risley has accepted a position as overseer of finishing at the Central Worsted Company, Central Village, Conn. He comes from Lawrence, Mass.

James Richardson, for thirteen years overseer of carding at the Quidnick Mills, Quidnick, R. I., died at the home of his daughter, Mrs. Annie

Wood, at the age of 74 years. He had not been employed for the past five years on account of his health.

At a meeting of the directors of the Cocheco Woolen Mfg. Company, Dover, N. H., H. W. Owens, who has been superintendent of the mills for the past three years, was appointed agent to succeed Chas. H. Fish, who resigned. Mr. Fish accepts the position as manager for all of the B. B. & R. Knight Corporation of Providence, R. I.

George Schofield, retiring agent of the Moosup Mills, American Woolen Company, Moosup, Conn., was pleasantly surprised, November 25th, with a handsome roll top desk, presentation speech being made by Frank Stark. A short musical program was rendered and refreshments were served.

H. O. Sutcliffe, superintendent of the Borden Felting Mills Company, Millbury, Mass., for the past nine years, tendered his resignation some time ago to take effect December first, but he has decided to withdraw the same.

Stephen Duffy, overseer of the finishing department at the Huntington Mfg. Company, Huntington, Mass., has resigned.

J. M. Newsome has re-entered the employ of the Princeton Worsted Mills, Trenton, N. J., as overseer of dyeing. He recently accepted a position at the Southwark Mills Company, Philadelphia.

C. V. James has accepted a position as overseer of carding at the Kindley Mfg. Company, Mt. Pleasant, N. C.

C. N. Poore has been appointed superintendent of the Green River Cotton Mills at Zirconia, near Hendersonville, N. C.

I. B. Covington has been promoted to the position as general superintendent of the Mt. Holly Cotton Mills and the Albion Mills, at Mt. Holly, N. C.

O. B. Sawyer has accepted a position as overseer of finishing at the Rochester Woolen Company, Rochester, N. H. He comes from Readfield, Me.

Walter Dripland, overseer of mule spinning at the Troy Mills, Fall River, Mass., has been appointed overseer in charge of the ring spinning in connection with his other duties at this mill.

William Hallowell has accepted a position in the designing department at the Wood Worsted Company, Lawrence, Mass. He comes from Mapleville, R. I.

E. L. Howarth, engineer of the No. 1 Mill, Union Mfg. Company, Fall River, Mass., has accepted a position at the electric power plant, Attleboro, Mass. His successor is John Galvin, who formerly held the position as engineer at the No. 2 Pocasset Mill. Mr. Galvin is succeeded by Mr. Littlefield, assistant engineer at the Fall River Iron Works.

Jos. A. Cox has accepted a position as overseer of weaving at the Flint Mill, Fall River, Mass., succeeding his brother, James Cox. The latter recently took charge of weaving at the Arkwright Mill.

J. H. Lord is now superintendent of the Wassookeag Woolen Company, Dexter, Me. He was formerly connected with the Indian Spring Woolen Company, Madison, Me.

Timothy Cary, overseer of the burling department at the Riverside Mill, Olneyville, R. I., has severed his connection with that company. He had been employed by this company twenty years.

Everett Pike has accepted the position as superintendent of the Quinapoxet Woolen Company, Quinapoxet, Mass. He was formerly designer at the Mayo Woolen Company, Millbury, Mass.

Chas. Newton has accepted the position as designer at the Mayo Woolen Company, Millbury, Mass.

Frederick B. Hayes, assistant superintendent of the Hargraves Mills, Fall River, Mass., has been appointed instructor in designing at the Textile School. He succeeds W. H. Hartley, deceased.

J. B. Curtis has accepted the position as overseer of dyeing at the Wakefield Mfg. Company, Providence, R. I. He comes from the Peacedale Mfg. Company, Peace Dale, R. I.

Charles North has accepted the position as boss finisher at the Livingstone Worsted Mills, Washington, R. I.

John H. Morrissey, formerly overseer of the cloth room at the Hamilton Woolen Company, Lowell, Mass., has accepted a similar position with the Warren Mfg. Company, Warren, R. I.

S. N. Anderton, formerly of the Atlantic Mills, Providence, R. I., is now overseer of dressing at the Montrose Woolen Company, Woonsocket, R. I.

Frank Hale, for the past ten years with the W. H. Winslow Company, Portland, Me., has accepted a position as overseer of the weave room at the Royal River Mfg. Company, Yarmouth, Me.

Chas. B. Jennings has accepted a position as superintendent of the Guerin Spinning Company, Woonsocket, R. I. He formerly was employed at the Perry Yarn Company, Webster, Mass.

Francis J. Moore has accepted the position as cloth examiner at the Dunn Worsted Mills, Woonsocket, R. I.

James Daley, superintendent of John M. Stearns & Company, Williamsport, Pa., manufacturers of dress silks, has severed his connection with that company. The position has been taken by W. B. Hoehm.

L. Olonette has accepted a position as overseer of dyeing at the Lafayette Worsted Mills, Woonsocket, R. I. He succeeds Gustaf Prevost, who goes to Harrisville.

Edward J. Doheney, formerly of the Saranac Mills, Blackstone, Mass., has accepted the position as overseer of dyeing at the William Tinkham Mills, Harrisville, R. I.

Arthur L. Emery of Manchester, N. H., who has had charge of part of the spinning at the Stark Mills, has been given charge of all the spinning.

Abraham Taylor has severed his connection as boss carder at the Golden Rod Mill, Wales, Mass. Thomas Fletcher succeeds him.

James Pratt has accepted a position as loom fixer at the Dunn Mills, Woonsocket, R. I. Thomas Danahey has taken a position as overseer of weaving, nights, with the same company.

Thomas Browning, formerly overseer of ring spinning, spooling, warping and twisting at the Potomska Mills, New Bedford, Mass., and who had held that position for eighteen years, was pleasantly surprised by his employes November 28th with a gold watch and chain. John T. Wilkinson, second hand, made the presentation.

Jos. Fieldings has accepted the position as overseer of weaving at the Deavitt Mfg. Company, Lowell, Mass., succeeding John Howard.

Arthur Follette, secretary of the Glenark Knitting Company, Woonsocket, R. I., has announced his candidacy for the position of City Treasurer.

Geo. E. Stevens, superintendent of the Blackstone Stocking Company, Central Falls, R. I., has severed his connection with that company and returned to his former home in Laconia, N. H.

Chas. F. Faulkner, a well known cotton mill man of Griffin, Ga., has taken charge of the Eufaula Cotton Mills of Eufaula, Ala.

W. D. Ingle, overseer of weaving at the Merrimack Mill, Huntsville, Ala., has resigned and accepted a similar position at Greenville, S. C.

J. C. Mountjoy has accepted the position as overseer of spinning at the W. S. Gray Mill, at Woodruff, S. C.

A. H. Bradley has been appointed superintendent of the new mill to be started at Kosciusko, Miss. He comes from Pell City, Ala.

J. C. Ballard, for nine years superintendent of the Vivian Mills, Cherryville, N. C., has accepted a position as superintendent of the Howell Mfg. Company, Cherryville, N. C.

John Howard, overseer of weaving at the Deavitt Mfg. Company, Lowell, Mass., has resigned and accepted the position as overseer of weaving and designing at the Cleveland Woolen Company, Cleveland, Tenn.

Jesse Cloudman, overseer of spinning, has reentered the employ of the L. J. Robinson Woolen Mill, South Windham, Me. He was formerly employed by this same company.

H. S. Ford, overseer of carding at the Faulkner Woolen Company, Stafford Springs, Conn., has resigned. His successor is P. F. Sheridan of Lowell, Mass.

Robert F. Herrick of Boston, Mass., has been elected to the Board of Directors of the American Felt Company, Franklin, Mass., which also includes Wm. Bloodgood, Demont Clark, Schuyler R. Ingham, Albert Wiggin of New York; Fred S. Clark, Wm. H. Sweatt and Geo. F. Willett of Boston and Edw. H. Rathburn of Woonsocket, R. I. Mr. Sweatt, who has been acting as president, is to be elected president of the company at the next meeting of the directors.

Thos. Ahern has resigned his position in the carding department of the American Woolen Company's Mill, Burlington, Vt., and has accepted a position at the Rochester Woolen Company, Rochester, N. H.

Henry D. Lathrop, overseer of spinning at the Amidon Woolen Mills, Hinsdale, N. H., has resigned. His successor is Thos. H. Smith.

T. F. Cuddy, superintendent of the Cox Mill, Anderson, S. C., but who later accepted the position as traveling representative for the Textile Journal of Charlotte, N. C., has taken a position as superintendent of the mill at Clio, S. C.

James L. Erwin, manager of the Oxford Cotton Mills, Oxford, N. C., has been transferred to the position as manager of the Odell Mills, Concord, N. C.

Geo. Florence has taken the position as superintendent of the Elizabeth Mills, Egan, Ga.

G. W. Burnett has accepted a position as overseer of carding at the Tifton Mfg. Company, Tifton, Ga. He was formerly employed at Orangeburg, S. C.

W. P. Hooneyhan has accepted the position as overseer of carding and spinning at the Brown Mfg. Company, Concord, N. C. He comes from Worth, N. C.

Lewis W. King, overseer of carding and spinning at the Brown Mfg. Company, Concord, N. C., has taken a position as superintendent of the Harriss Mfg. Company, Rock Hill, S. C.

Robert McCarty, overseer of spinning at the Skenandoa Cotton Company, Utica, N. Y., has been promoted to the position of assistant superintendent.

Jos. Thomas has been appointed overseer of the spinning department for the Skenandoa Cotton Company, Utica, N. Y. He was formerly second hand at this mill.

Chas. Garner has accepted the position as overseer of weaving at the Millbury Worsted Company, West Millbury, Mass. Mr. Garner is to have charge of the night force and was formerly employed at the Mayo Woolen Company, Millbury, as overseer of weaving.

C. F. James, superintendent of the Middle Georgia Mills, Eatonton, Ga., has taken charge of the mills at Mt. Pleasant, N. C.

J. R Watson has accepted the position as overseer of the slashing department for the Eagle & Phoenix Mills, Columbus, Ga. He was formerly employed at Danville, Va.

Julius Schmitz has resigned his position as designer for the Slayden Kirksey Woolen Mills, Waco, Tex.

Ernest Rhodes has been appointed superintendent of the Lebanon Mills, American Woolen Company, Lebanon, N. H. Mr. Rhodes has had charge of the designing at this mill and assumes the position as superintendent in connection with his other duties.

Martin Welch, overseer of dyeing at the Central Worsted Company, Central Village, Conn., has

resigned and accepted a similar position at the Auburn Woolen Company, Auburn, N. Y.

Hemenway C. Bullock has accepted a position as manager of the Ballou Yarn Company, Providence, R. I. He will also continue to operate his own mill at Plympton, Mass.

Remington Plummer, bookkeeper at the American Woolen Company's mill at North Vassalboro, Me., has resigned to accept a similar position with a fruit company in Boston.

Samuel T. Whipple, Jr., of River Point, R. I., has accepted a position as overseer of the weave room at the Arctic Mills of the B. B. & R. Knight Company, Arctic, R. I.

Walter B. Pope, instructor in chemistry at the Lowell Textile School for the past two years, has resigned to accept a position in the government laboratory at Washington, D. C., having been appointed chemist in the department of agriculture.

Paul H. Boutiette, loom fixer at the Fisher Mfg. Company, Fisherville, Mass., has resigned to accept a similar position with the Army & Navy Cotton Duck Company, at Wilkinsonville, Mass.

Geo. Stevens, overseer of weaving at the Tremont Worsted Company, Methuen, Mass., has resigned.

Albert Murphy has accepted a position as second hand in the spinning department at the Mankato Mill, Mankato, Minn. He comes from the Assawaga Company, Dayville, Conn.

Eugene R. Tilton, foreman in the rib knitting department at the Fenimore Knitting Mills, Phoenix Mills, N. Y., for the past two years, has severed his connection with that company.

P. E. Merrian has accepted a position as master mechanic at the Methuen Company, Methuen, Mass. He comes from the Washington Mill, Lawrence, Mass.

Jas. Graham has taken a temporary position in the designing department at the Oneko Woolen Company, New Bedford, Mass. He comes from Pittsfield.

Clarence L. Jackson has accepted a position as overseer of finishing at the Oakland Mfg. Company, Reisterstown, Md. He was formerly employed at the Somerville Mfg. Company, Somerville, N. J.

R. W. Barber, agent of the Faulkner Mfg. Company, North Pillerica, Mass., was pleasantly surprised by the overseers and help employed by the Faulkner Mfg. Company on Thursday evening, December 24th, when they met in his office and presented him with a handsome leather covered easy chair. The presentation was made by C. Evans. Mr. Barber was taken by surprise but responded in a few well chosen words.

The H. W. Johns-Manville Company of Brooklyn, N. Y., presented a turkey to each married man employed by the above company on Thursday, December 24th, and an amount of money to the single help.

T. J. Nevins, designer of the H. W. Johns-Manville Company, Brooklyn, N. Y., was presented with a handsome diamond stick pin by the help employed in the weaving department on Christmas Eve.

A. W. Chapin has accepted the position as superintendent of the Melsrose Knitting Mills Company, Raleigh, N. C.

H. G. Tietze, overseer of spinning at the Racine Woolen Mill, Racine, Wis., was presented with a handsome tobacco jar as a Christmas gift by the help employed in the spinning department.

Albert Ainley, overseer of weaving at the No. 1 Mill of the Coronet Worsted Company, Mapleville, R. I., was presented by the help in the weaving department with a handsome gold watch as a Christmas gift. Lees Mallison, overseer of finishing at the same company, was remembered by the help, who presented him with a beautiful writing set. Rinaldo E. Green, overseer of the winding and spooling department, was presented with a handsome gold watch fob and Louise Maloney, overseer of burling and sewing, was presented with a diamond ring.

J. Y. Routh has accepted a position as overseer of dyeing at the Lacon Woolen Mill, Lacon, Ill.

Albert K. Tavor has accepted a position as clerk in the office of the Forestdale Mfg. Company, Forestdale, R. I. He comes from Slatersville, R. I.

John H. Burrans has accepted the position as overseer of dyeing and finishing at the Central Worsted Company, Central Village, Conn. He was formerly employed as overseer of dyeing at the R. I. Worsted Company, Stafford Springs, Conn.

David A. Provost has accepted the position as overseer of dyeing at the Elm Mills Woolen Company, Tilton, N. H. He was formerly employed at Lowell, Mass.

Harry C. Dresser has accepted a position as superintendent of the Cheswell Mfg. Company, Westminster, S. C. He was formerly employed at the Bibb Mills, Macon, Ga.

D. W. Andrews has accepted a position as overseer of carding at Orangeburg, S. C.

R. T. Comer has accepted the position as manager and superintendent of the Cuero Cotton Mill, Cuero, Texas.

J. W. Brown has accepted the position as overseer of weaving at Kosciusko, Miss. He was formerly employed at Pell City, Ala.

B. T. Bumgardner has accepted the position as night overseer of carding and spinning at the Brown Mfg. Company, Concord, N. C.

J. H. Huff, overseer of spinning at the Springstein Mill, Chester, S. C., has resigned to accept a similar position with the Gaffney Mfg. Company, Gaffney, S. C.

H. E. Erwin has accepted the position as overseer of spinning at the Springstein Mills, Chester, S. C. He was formerly employed at the Continental Mfg. Comany, Charlotte, N. C.

J. D. Bolton has been promoted to the position of superintendent of the No. 2 Mill at McColl, S. C. He was formerly employed as overseer of spinning for this company.

Geo. Boothroyde, for a number of years second hand in the mule spinning department at the National & Providence Worsted Company, Providence, R. I., was found dead at his home, 468 Plainfield St., Olneyville, the discovery being made by his wife on her return from work.

Ruddach P. Robinson has accepted the position as bookkeeper at the Burlington Mills, Winooski, Vt. (American Woolen Company). He was formerly employed at the Ray Mills, same company, Franklin, Mass.

Louis Kerr and Miss Alberta S. Brownell were married on Tuesday evening, December 15th. They were presented with a silver service consisting of seventy-two pieces as a wedding gift by the second hands and loom fixers at the Butler Mill, New Bedford, Mass. Mr. Kerr is designer at this mill.

Hon. Jos. E. Fletcher, a prominent woolen manufacturer with mills at Allenton and Mapleville, R. I., was tendered a notable banquet at the Parker House, Boston, Mass., December 16th. A number of prominent business men and friends were present.

Orson Clark, superintendent of the Wakefield Mfg. Company, Wakefield, R. I., was the holder of the lucky ticket which drew the handsome coffee set given by the Narragansett Steam Fire Engine Company of that town.

John A. Crossland, assistant superintendent of the Skenandoa Cotton Company, Utica, N. Y., has resigned to accept the position as superintendent of the Cohannet Mill No. 3 of the N. E. Cotton Yarn Company, Taunton, Mass.

Eugene Sullivan has accepted a position as overseer of carding and spinning at the Passaic Woolen Company, Passaic, N. J. He formerly held this position. He comes from Otter River, Mass.

Kirk Verity, designer for the Central Worsted Company, Central Village, Conn., has severed his connection with them.

Nilson Pease, loom fixer at George Mabbett & Sons Company, Plymouth, Mass., has resigned to accept a position as overseer of weaving at the Mascoma Mills, Lebanon, N. H. He was presented with a purse of gold by the help employed in the weaving department, also a suit pattern which was a gift from the firm.

John W. Gledhill has acepted the position as overseer of finishing at the Emerald Mills, Philadelphia, Pa. This company manufactures cotton worsted men's wear.

Walter E. Holloway, who for the past twenty years has been general purchasing agent of the Safety Insulated Wire & Cable Co. of New York, severed his connection with that company to take effect December 31st, as the purchasing department is to be abolished. Mr. Holloway expects to start in business on his own account and his wide circle of acquaintances will be interested in his success.

Wm. Allen, overseer of weaving at the Iron Works No. 4 Mill, Fall River, Mass., has severed his connection with that company and is succeeded by John Smith, who was second hand at this mill.

Geo. F. Smith has accepted a position as overseer of spinning at the Merrimack Mill, Lowell, Mass.

A. G. Smith has been appointed agent of the Grant Yarn Company, Fitchburg, Mass., to succeed Wm. E. Keach. J. L. Duffy has been made superintendent of this mill.

Frank Duffy has accepted a position as overseer of spinning at the Faulkner Mills, Stafford Springs, Conn. He was formerly employed at Winooski, Vt.

C. R. Harmon has accepted a position as overseer of carding at the Southern Mfg. Company, Bessemer City, N. C. He comes from the Lula Mill, King's Mountain, N. C.

E. D. McCullum, overseer of weaving at the Highland Park Mills, Charlotte, N. C., has resigned.

W. W. Stine has accepted a position as master mechanic and chief engineer at the Hudson Cotton Mfg. Company, Hudson, N. C. He comes from Gastonia, N. C.

D. D. Perry, formerly overseer of weaving at the Manetta Mills, Lando, S. C., has accepted a position with the office force at the same mill.

Wm. H. Morris, superintendent of the Marlboro Cotton Mills of McColl and Bennettsville, S. C., has accepted a similar position with the Kinston Cotton Mills, Kinston, N. C.

Frank M. Farrell has accepted the position as overseer of spooling, twisting, warping and reeling at the Warner Cotton Mills, Newburyport, Mass. He comes from the Bennett Mills, New Bedford, Mass., and succeeds Henry A. Lemay.

Henry C. Lemay, overseer of spooling, twisting and warping at the Warner Cotton Mills, Newburyport, Mass., has resigned. The overseers in the different departments presented him with a handsome cigar case and cigar holder. The help under his employ presented him with a purse of money.

Earl Doane of Bowling Green, Ohio, has accepted a position as overseer of knitting at the Piqua Hosiery Company, Piqua, Ohio, on the night shift.

Wm. Wells has accepted the position as overseer of dyeing at the Ray Mills, American Woolen Company, Franklin, Mass., succeeding Albert Crabtree. Mr. Wells comes from New Hampshire.

A. A. Ramsey has accepted a position as overseer of spinning at the Southern Mfg. Company, Bessemer City, N. C., succeeding E. P. Morse. Mr. Ramsey was promoted to this position from second hand.

Louis Cohn has assumed the management of the Meridian Cotton Mills, Meridian, Miss. He formerly held this same position.

Geo. I. Nuttall has accepted the position as superintendent of the Goldsboro Knitting Mills, Goldsboro, N. C.

Daniel Sheehan, overseer of carding at the W. E. Tillotson upper mill, Pittsfield, Mass., has severed his connection with that company. The position has been filled by David A. McArthur.

E. A. Jones has accepted a position as overseer of carding at the Somerset Mfg. Company, Monson, Mass., succeeding David McArthur.

Fred Lavigne, overseer of ring spinning at the Boott Mills, Lowell, Mass., has resigned. The position has been filled by Wm. H. Nelson of Manchester, N. H.

Jos. F. King has accepted the position as overseer of dyeing at the No. 2 Mill of the New York Mills, New York Mills, Oneida County, N. Y. He was formerly employed by this same company.

Ernest J. Hill has accepted a position in the spinning department of the Burlington Mills, Winooski, Vt. He comes from Holden, Mass.

Walter Brown, overseer of carding at Peck's lower mill, Pittsfield, Mass., in the cotton department, has severed his connection with that company and secured a similar position at Ware, Mass.

James J. Scott, formerly second hand at the York Dye House, Biddeford, Me., has accepted a position as overseer of dyeing at the Commonwealth Cotton Mfg. Company, Durham, N. C.

Wm. Wells, overseer of dyeing at the Elm Mill Woolen Company, Tilton, N. H., has resigned to accept a similar position with the Ray Mill, American Woolen Company, Franklin, Mass.

Geo. E. Duffy has been secured by the E. D. Thayer Woolen Company, of Worcester, as manager of one of their mills, and also to manage the Merchant's Woolen Company at East Dedham, Mass. The latter mill is closed but there is a rumor that it is to start in the near future. Mr. Duffy was formerly agent of the Charles River Woolen Company, No. Bellingham, Mass., and resigned some time ago on account of ill health.

Wilkins Crosley, Jr., has accepted a position as overseer of dyeing of the A. D. Gleason Woolen Mill, Gleasondale, Mass. He was formerly employed as second hand in the dyeing department at the Saxonville Mill, Saxonville, Mass.

Adolphus Cloutier has accepted a position as overseer of waving at the Arkwright Mills, Interlaken Company, Arkwright, R. I., succeeding Archie Devlin.

James Redfern, overseer of mule spinning at the Gosnold Mill, New Bedford, Mass., has resigned.

Moses H. Cone a wealthy cotton manufacturer of Greensboro, N. C., died at Baltimore, Md. His remains were brought to Flat Rop, near Bowling Rock, N. C., where the body was interred. A number of prominent citizens accompanied the funeral party through the state.

DEATHS.

Thomas Searles, president of the Searles Knitting Company, Pottstown, Pa., died at his home in that city at the age of 74 years of pneumonia. He was also a director of the Citizens' National Bank and identified with many other business enterprises.

John H. Hickless died at his home in Shirley, Mass. His life work had been that of manufacturing cotton goods and his last official position in that industry was superintendent of a cotton mill at Oakdale, Mass.

Louis St. Peter, forty years of age, residing at 233 Flint St., and employed as third hand in the spinning room of the Lincoln Mills, Fall River, Mass., was stricken with an attack of heart failure at the corner of Pleasant and Jenks Sts. He was taken to a near by store and died shortly after being removed. He is survived by his wife and two sisters.

Joseph Augustus Kendall, of the firm of Chadbourn & Kendall, Portland, Me., woolens and tailors' trimmings, died November 29th after a short illness. He was born in Alfred, Me., May 7, 1823. In 1854 he came to Portland where he entered a partnership with his brother-in-law, the late B. F. Chadbourn, which lasted until the death of the latter in 1889. He early developed business ability which showed itself throughout his long and honorable business career. He is survived by one son, Alfred Augustus Kendall, who has been associated in business with his father for many years.

Huntington Porter Smith, a woolen merchant of Boston, died Friday, November 27th, after a long illness at his home, 41 Dana St., Cambridge. He was born in Rye, N. H., and came to Cambridge 44 years ago. He then engaged in the woolen business in Boston, his place of business being at 72 Bedford St. He is survived by three children, two sons and a daughter.

Asher L. Phillips, who was formerly a silk merchant on Mercer St., New York City, died at Hotel Cumberland, recently, at the age of 63 years. His death was due to heart failure.

Geo. Philo Hanks, whose grandfather, Rodner Hanks, started the first silk mill in this country at Mansfield, Conn., in 1810, died at his home in Willimantic at the age of 75 years. Mr. Hanks followed his grandfather and father in the silk business and had several town offices. A widow and one son survive him.

Harold K. Morse, overseer of the finishing department at the Hammond Knowlton Company, Putnam, Conn., died after undergoing an operation on Monday, December 21. Mr. Morse was operated on for appendicitis. He was born in 1876.

Wm. E. Weaver, who invented the Turry loom used in the manufacturing of Turkish towels and other machinery, died at his home in Norwalk, Conn., recently.

Andrew Dexter died at his home in Talcottville, Conn., Tuesday, December 8th, after a long illness of heart disease. He was employed for Talcott Bros. as overseer of carding for forty-two years but resigned some few years ago and took up a small farm in Vernon, Conn. He had been sexton of the Congregational Church for a number of years

New Publications.

[Any work noticed under this head can be obtained through the office of this journal.]

King Cotton; by James L. Watkins, formerly cotton expert in the Department of Agriculture; 308 pages 5 1/2 by 9; James L. Watkins & Co. & Sons, P. O. Box 1151, New York.

This is an historical and statistical review of the growing of American cotton, written by one who has had practical experience in the business and who, as cotton expert in the government service, has had an excellent opportunity to study the industry in its broad aspects. In this volume he has arranged much valuable data in a very convenient form. He first traces the development of cotton raising in the United States from the beginning in 1798 to 1908, and then devotes separate chapters to cotton raising in the different States. Mr. Watkins has rendered a valuable service to the trade by compiling this valuable collection of facts concerning raw cotton.

Textile and Engineering Directory and Year Book; C. D. Kerrawalla, Kalachowki Road, Bombay, India.

The third edition of this directory contains a list of the cotton, jute, silk and woolen mills, jute and cotton presses, cotton ginneries and iron works in India. The number of spindles or looms, names of managers and overseers and amount of capital are given for each cotton mill; the name of proprietors, for each of the other establishments. There is also a list of the cotton mills in Japan. There are cotton yarn tables, production tables for cotton machinery and other data of value to textile manufacturers and engineers. To this is added a diary for the current year.

The Badische Book; Badische Co., New York.

Among the new publications received none is more attractively prepared from the standpoint of book making than the "Badische Book" of which a limited numbered edition has been printed for private distribution by the Badische Co. In this volume something of the story of the famous works of the Badische Anilin & Soda Fabrik Co. in Ludwigshafen on the Rhine, is told and many American readers who associate this concern only with the manufacture of dyestuffs for the textile industry will be surprised to learn of the great extent of its business in other lines, although from the first the development of coal tar colors for the dyeing industry has been a special study.

The story of its achievements in the line of industrial chemistry is almost the history of this branch of the dyeing industry. The Badische Co. were the first in producing alizarine commercially from anthracene and an even greater achievement is their wonderful success in the production of synthetic indigo from coal tar in a manner which renders it equal to the product obtained from the natural indigo plant.

So one might mention one after another of their great achievements in commercial chemistry.

One problem to which they have recently turned their attention and consider one of the most important problems of modern chemistry is the utilization of the nitrogen of the air. It is now about to engage upon this process on a tremendous scale in Norway, using the enormous water power which that country has at its disposal, so that when the great natural saltpetre deposits which are so necessary for agricultural fertilizers are exhausted the Badische Co will be ready to supply the demand with a synthetic product.

The greater part of the book and perhaps its most interesting feature to the general reader is the illustrated description of the great plant at Ludwigshafen and the system along which it is organized and operated, the improved methods for safety and sanitation, premium and pension system for its employes, model houses for the workmen, schools, hospitals, dining halls, restaurants, kindergartens, and other features of welfare work they have carried in this great German establishment to the point of highest development which may well be studied by American employers of labor.

As a reference book for welfare work and tried and proved methods in dealing with the labor question from this point of view, this book should be in the hands of every manufacturer interested in such subjects. It is beautifully printed, handsomely bound and profusely illustrated with pictures of the buildings, club houses and gives the floor plans of many of the semi-public buildings.

Business Literature.

The Value of Conditioning; The United States Silk Conditioning Co., New York.

This is a very attractive book of 62 pages in which there is much useful information regarding the testing of silk and other textile materials. It contains a number of valuable tables, the contents forming a very convenient book for reference by the overseer or manufacturer.

The Goulds Mfg. Co., Seneca Falls, N. Y., have issued a 12-page pamphlet describing and illustrating their various makes of mine pumps, paper and pulp mill pumps, spray, vacuum and air pumps and apparatus for spraying.

The Sturtevant Steam Turbine; B. F. Sturtevant Co., Hyde Park, Mass.

An illustrated pamphlet of 6 pages describing the Sturtevant steam turbine for driving blowers, exhausters, generators, centrifugal pumps, line shafting, etc.

Textile Motor Talks; Westinghouse Electric & Mfg. Co., Pittsburg, Pa.

A 7-page booklet illustrating and describing the advantages of the electric motor drive in textile mills. On the sixth and seventh page is shown the method of figuring the length of lap. This is the first of a series of motor talks that will be issued by this company.

Textile Motor Talks; Westinghouse Electric & Mfg. Co., Pittsburg, Pa.

This is the second of a series that have been issued by this company which describes the advantage of motor-driven belts. It gives much valuable information.

Calendars.

The Lawrence Dye Works, Lawrence, Mass., dyers and finishers, are sending out a neat office calendar in black and white, with a view of their works.

The William Kedward Dyeing Co., 246 Chestnut St., Philadelphia, Pa., dyers and bleachers. A large wall calendar in blue and white.

The Revere Rubber Co., Boston, Mass. A businesslike wall calendar in three colors.

The Commonwealth Trust Co., Boston, Mass., are sending out a very fine calendar on which is a picture of their new building.

Thos. Wolstenholme, Sons & Co., manufacturers of French and Bradford spun yarns, Philadelphia, Pa. A large wall pad, 22 by 14 inches, with a leaf for each day of the year. The front leaf gives a very interesting account of the first calendar.

Draper Company, Hopedale, Mass. The calendar sent out with the compliments of the Draper Company of Hopedale, Mass., is arranged on the system usually employed by this firm, which differs somewhat from other calendars and gives an opportunity for memoranda on the face of the date sheet. The top of the calendar is ornamented with an embossed design in colors, showing the latest type of the Northrop loom. They also send pads for their large wall calendar.

Mason Machine Works, Taunton, Mass., builders of machinery for cotton mills, are sending out a large and very decorative wall calendar, showing a typical Western scene.

The Martin Hosiery Mills, Raleigh, N. C., are sending out to the trade a very dainty calendar for office use.

The J. L. & T. D. Peck Mfg. Co., Pittsfield, Mass. A very attractive wall calendar which is a copy of the celebrated painting "Keeping Watch."

The R. H. Hood Co., Philadelphia, Pa., are sending to the trade a very beautiful calendar for office or library. It is a copy of the celebrated painting "Gladys."

The H. G. McKerrow Co., Boston, Mass., are sending out large wall calendars on which is a map of the United States with a border of the flags of the different nations.

The Mayo Knitting Machine & Needle Co., Franklin, N. H., are distributing to the trade a calendar bearing a lithographed reproduction of the beautiful painting called "The Parting Day." It is an ornament in either the house or the counting room and the calendar attached to the painting is very clear.

General Machine Works Acquires Ruth Business.

The General Machine Works of York, Pa., a corporation organized under the laws of Pennsylvania, has acquired by purchase the plant, equipment and all rights and patents of the Ruth Machine Co., manufacturers of knitting machines and other devices. They will continue to manufacture this line of machinery and add such improvements from time to time as the trade requires.

This plant was especially equipped for the manufacture of this line of work and has all necessary facilities to build good machinery. The officers of the company are determined to employ every up-to-date method as it is developed, which will enable them to keep their product up to the high standard which they have set. Several new machines are in contemplation and will be brought out when fully developed.

The present officers of the company are as follows: President, Geoffrey B. Yost; secretary, Horace Brillinger; treasurer, Chas. D. Moul, and manager, A. R. Frantz.

Gratifying Orders Received.

"Anti-Pluvius" skylights and sidelights have recently been ordered and are now nearing completion for the D. L. & W. R. R. Bush type trainshed at Scranton, Pa. This is the second order The G. Drouve Co., Bridgeport, Conn., have received for "Anti-Pluvius" skylights and sidelights from the Lackawanna Railroad for new passenger trainsheds, the other being at the Hoboken terminal. The 1908 edition of the "Anti-Pluvius" skylight catalogue recently received from the German manufacturers describes the new railroad station at Hamburg on which "Anti-Pluvius" skylights were used. This station is one of the largest in the world, and it is interesting to note that the engineers over there are giving their approval to this type of skylight. A few of the important installations of "Anti-Pluvius" skylights, recently made in Germany and Belgium are mentioned: Municipal electric power station, Charlottenbourg, Berlin; railroad station, Lubeck, Belgium; locomotive works, Darmstadt, Germany; industrial plant of G. Schiele Company, Frankfort-on-Main In this country recent installations include the Lackawanna Railroad, Scranton; American & British Mfg. Co., N. Y. C. & H. R. R. R. Co., Chicago City Railway Co., New York City Ry. Co., Purdue University, the C. R. R. of N. J. ferry terminal, etc. This type of puttyless skylight meets the demand for an easily accessible construction. It permits of repainting of the steel supporting bars and cleaning of the inside glass surface without much trouble and with ordinary labor. The "Anti-Pluvius" type of construction can be sent anywhere and is easily erected with the aid of a screw-driver and a wrench. The "Drouve" continuous clip (protected by patent) is a valuable improvement in skylight construction. It secures a tight and proper fit of skylight to the curb. The "Anti-Pluvius" system primarily is designed to secure results.

Capital vs. Labor.

Just before the Christmas holidays, Mr. James Inglis, president of the American Blower Co., Detroit, Mich., made an address to the employes of the company, extending holiday greetings and expressing the satisfaction of the management at the continued very cordial relations which have existed between it and the men, and in which there has practically been no break during more than a quarter of a century. Mr. Inglis stated that in his observation the old antagonism between employer and employe is gradually disappearing, and better relations are constantly being established. As an illustration he pointed to the growing custom among manufacturers to remember their employes in some substantial way at Christmas time.

In the case of this company the relations of employer and employe are expressed by the distribution of a large sum of money at the holiday season. Two years ago this company gave each one of their employes one dollar and one additional dollar for each year of continuous employment. The largest single sum paid was $25.00, that being the entire life of the company at that time. Amounts ran from that to one dollar; no one received less than the latter amount. Last year, owing to the business depression, nothing of this nature was done but this year the plan above outlined was again adopted.

Odd Lots of Yarn.

What do you do with the odd lots of yarn which accumulate in your mill? This is a question which a textile manufacturer has to deal with at times, when he has run off a certain grade of goods and has a quantity of yarn left over and cannot use. Edward Devlin, 1734 Hope St., Philadelphia, Pa., dealer in all grades of yarns, wishes to call the attention of manufacturers when this question comes up that he is in the market for all grades of yarns of any kind which he buys for cash and asks that samples and prices be sent to him before disposing of them elsewhere. He also desires to state that he can supply, at short notice, yarn in any quantity and any kind and solicits the business of those interested.

Non-Fluid Oils.

The Cuban demand for non-fluid oils has grown to such an extent that the manufacturers, the New York & New Jersey Lubricant Co., 14 Church St., New York City, have decided to place a stock of their various grades with agents in every town of any size on the island. W. F. Kimball, vice-president of the company, has just gone to Cuba to facilitate the arrangements. James B. Clow & Co., Obispo 36, Havana, the largest Cuban importers of engineering supplies, are to act as distributers and W. N. Anderson, who is well known among Cuban buyers, will give his personal attention to all inquiries for their products.

Non-fluid oils first attracted attention through their ability to lubricate fully as well as the finest fluid mineral oils, and without dripping to waste, like ordinary oils, and without retarding the bearings as do greases. The dripless consistency is obtained by condensing pure lubricating elements, instead of thickening with fats, waxes, talc, rosin, or graphite as in greases.

Lace Dressing Plants.

Messrs. George Sims & Son, Sherwood St., Nottingham, England, have for years specialized in making machinery for lace dressing. They have supplied plants for most of the prominent lace manufacturers of Great Britain and their machinery is also favorably known and is in extended use in this country.

Among the American concerns whom they have supplied with lace dressing plants are such representative firms as the Lackey Mfg. Co., Lehigh Mfg. Co., Wilkes Barre Mfg. Co., Mr. Joseph Bromley, Philadelphia, J. H. Lowenstein, New York, American Mfg. Co., Wyoming Valley Lace Mills, Fulton County Silk Mills, Zion City Lace Industries, C. R. Mosley Mfg. Co., and the Taylor Textile Co.

The Lackey Mfg. Co. of Newburgh, N. Y., has one of their gassing machines for laces.

They invite inquiries from those who may be interested in this line of machinery with the confidence that they can satisfy the most exacting requirements.

Cop Machinery.

The John Eppler Machine Works, 629 Filbert St., Philadelphia, are manufacturers of the latest improved cop machinery of all kinds and upright knitting machines for the millinery, dress and upholstery trimmings manufacturers. This establishment has been in business since 1885 and, at the present time, report that there has been a great improvement in the demand for their machines. They particularly desire to call attention to their cop machines which are adapted to making paper tubes of all sizes and shapes for textile purposes and that they are in a position to supply manufacturers with these machines on short notice and solicit correspondence from those who are interested in this class of machinery.

Increasing Power Plant.

Through the office of Chas. T. Main, of Boston, the Pacific Mills of Lawrence, Mass., have recently placed orders for additional power house equipment as follows: With the Allis-Chalmers Company for a steam turbine with turbo jet condenser and generator of 3,250 K W capacity and additional exciter and switchboard apparatus. With the Bigelow Company for twelve additional horizontal return tubular boilers, of practically the same size as those contained in the first installation. These boilers will be supplied with superheaters.

The buildings are of sufficient size to contain all of this new apparatus, which completes the unit of station which has been planned for and built.

Another chimney will be built of the same size as the one recently erected, namely 200 feet high and 9 feet diameter inside the core.

Attachment for Rib Knitting Machines.

The Climax Machine Co., 1753-55 N. Howard St., Philadelphia, Pa., are desirous of calling the attention of the knitting trade to their advertisement in this issue, in which they are exploiting a new attachment for circular rib stocking knitting machines, a device which they state will increase the output of any machine to which it is attached 33 per cent. without any additional expense for labor, power, rent, belting, shafting, etc. Some of the largest stocking manufacturers in this country have applied this attachment to their machines and found it a great improvement. They are also manufacturers of an improved automatic take-up for flat knitting machines, as well as changing hand-driven machines to power. These devices can be attached at a small cost. The Climax Machine Co. will cheerfully and promptly answer any and all inquiries regarding the above devices.

Installing the Turbo-Humidifier.

During the last few days of December the G. M. Parks Co., Fitchburg, Mass., received orders for Turbo-Humidifiers from the Parsons Silk Throwing Co., Parsons, Pa.; Taylorsville Cotton Co., Taylorsville, N. C.; Abbott Worsted Co., Forge Village, Mass., and Fuld & Hatch Knitting Co., Cohoes, N. Y. They are now making a second installation of Turbo-Humidifiers for the Parkhill Mfg. Co., in Fitchburg.

Busy Machine Works.

The Oswald Lever Co., Lehigh Ave. and Mascher St., Philadelphia, report that a great change for the better, the fore part of December, has taken place in their business and they have received a number of orders for winders and spoolers, from not only local manufacturers, but from mills in the North, South, East and West and also from foreign countries. The high speed cross quiller, which we illustrated in our April number, has proven a "winner." As an indication of the great popularity of this machine the company states that they have received orders for it from some of the largest manufacturers of textile fabrics in the country and that it is meeting with success wherever it has been placed.

How It Is Done.

Comte L. de Jouffroy d'Abbans, Consul General of France for the West of England, came to Manchester on Wednesday as the official representative of the French Government to present Mr. C. W. Macara with the cross and diploma of the Legion of Honor, recently bestowed on him by the President of the French Republic. The presentation was made in the Lord Mayor's Parlor at the Town Hall, in the presence of the Deputy Mayor, Councillor Harrop (the Lord Mayor being absent through illness), several other members of the Manchester Corporation, and many friends and associates of Mr. Macara in public life. As the Deputy Mayor, accompanied by the Consul General (who was in the uniform of his office) and other representatives of France, entered the room the "Marseillaise" was played, the audience rising and cheering the visitors.

The Consul General, who spoke in English, said it was the pleasantest duty he had had in the course of his forty years of service in all parts of the world to hand over to Mr. Macara the cross and diploma of the Legion of Honor in recognition of the services rendered by him as the founder and head of the International Cotton Federation. Everyone who had taken a part in that movement was entitled to share in the honor; indeed, the whole country, and the Empire, shared more or less in the honor. The great International Federation represented 111 million spindles in twenty-two countries. (Cheers.)

The Consul General then read the diploma and handed it to Mr. Macara, and pinned the insignia of the Order on Mr. Macara's breast. Striking each shoulder with his sword, he declared Mr. Macara to be a Knight of the Order. This done, the Consul General embraced the new Knight, kissing him on both cheeks. The band again played the "Marseillaise."—The Cotton Factory Times.

New Agency for Flat Automatic Knitting Machines.

Edouard Dubied & Co., of Couvet, Switzerland, have established an agency for the United States and Canada in New York City for the sale of their flat full automatic power and hand machines for the manufacture of sweaters, knit gloves, sporting goods, or any kind of knit goods.

This firm ranks among the foremost European builders of knitting machinery, their plants having a capacity of turning out five thousand knitting machines a year. They are one of the oldest concerns in the line, having built this class of machinery since 1867.

The excellency of the make is generally recognized in Europe as second to none and their plants have been kept busy to supply the European manufacturers. Although they have never until recently catered to the American trade, a number of their machines are running in the United States, in factories whose managers have known the merits of the "Dubied Machines" from abroad.

The office is in charge of Mr. E. O. Spindler, room 706, 350 Broadway, New York, who shall be pleased to give full information to those who are interested.

Dyers of Hosiery.

The Crystal Hosiery Mills, 516 North George St., York, Pa., added a dyeing department to their hosiery mill a little over a year ago, and announced that they would do dyeing for the trade in addition to handling their own product.

The project has met with great success, due in great measure to the high character of work turned out, and the reasonable prices asked. They dye hosiery in fast black and colors, and handle work promptly and satisfactorily. They solicit business from the trade in general, and would be glad to hear from any parties in that line.

The Relation of Chemistry to Business.

The activities of every man of business, whether he knows it or not, and especially the activities and profits of every manufacturer are influenced and indeed often determined by purely chemical considerations. Our whole monetary system rest upon the fineness and purity of our gold coins as determined by chemical tests. Gold is comparatively plentiful today and the prices of everything relatively higher in consequence, chiefly because of a modern chemical process which permits the easy extraction of gold from low grade ores. A chemical discovery in Germany may sweep away the prosperity of a whole department of Southern France or take away the livelihood of thousands of East Indian peasants and laborers who never heard of chemistry or Germany.

The first of these things happened not so many years ago when German chemists learned how to make alizarine, the red coloring matter of the plant called madder, which was formerly traded in and grown in great quantities around Avignon.

The second is now taking place as the result of the discovery and manufacture of artificial indigo, the blue dyestuff formerly derived from the indigo plant of India.

Examples like this could be multiplied by hundreds but perhaps no more are needed to bring home the fact that chemistry is most decidedly something with which the business man must reckon.—From a talk by Arthur D. Little, Chemical Engineer, Boston, Mass.

Full Steam Ahead.

Speaking of the prospects for 1909, Dr. Schuyler K. Wheeler, President of the Crocker-Wheeler Co., Ampere, N. J., manufacturers of electrical apparatus, recently stated: "It is not reasonable to expect that business will immediately return to normal merely because the outlook at the present time is bright. A complete resumption of business cannot occur rapidly, and it may be months before conditions in the business world are what they were before the financial panic of a year ago. However, every feature of the situation is favorable at the present time. Factories are starting up, more men are being employed, and there is a better market than there has been for fourteen months for all kinds of machinery. I am looking forward, during 1909, to a complete recovery, and more and better business than we have yet had.

"At this time those companies like the Crocker-Wheeler Company, which have at great expense retained their organization and personnel, including highly trained designing and sales engineers, during the lean months of 1908, are now reaping the benefit of this policy and are in a position to go forward faster and with greater effect than is possible for the concerns that have been obliged, through forced economy, to reduce their organizations and discharge many of their good men."

New Jersey, Paterson. The Aronsohn Bloom Silk Co. will add 100 new silk looms manufactured by the Stafford Co., of Readville, Mass.

Running Full Time

Smith Drum & Co., Coral and Cumberland Sts., Philadelphia, builders of dyeing, singeing, finishing machinery, are busy running full time. They are shipping machines north, south, east and west.

Removing.

Edwin A. Newton, dealer of knitting mill machinery, new and second hand, located at 245 Race St., Philadelphia, will move to larger quarters at 310-312 North Fourth St. about Jan. 1.

More Orders.

Jacob K. Altemus, 2824 North Fourth St., Philadelphia, manufacturer of textile machinery, reports a marked improvement in business the past few months. He is particularly busy on winding, spooling and warping machinery.

American Blower System.

The American Blower Co. of Detroit gives out a list of orders for apparatus of their manufacture received during the month of November showing the variety of work and the widespread distribution of their product. Three special drier systems were sent to Iowa, Louisiana and New York, respectively; five brick drier plants, tilting steam traps; about thirty "A B C" engines for all sorts of industries. Most of these engines are used in connection with generator sets, some for driving fans, driving stokers and a variety of uses.

Eighteen installations of forced draft apparatus include orders from steel companies, railroad companies, power and light companies, as well as industrial concerns.

It is, however, in the line of heating and ventilating apparatus that the largest list of orders appears. They do a great deal of work for schools and colleges all over the country. Several large hotels, including the rebuilt Palace Hotel at San Francisco are in the list, as well as many mercantile establishments and factories. Three orders for ship ventilating apparatus and two large orders for mine ventilating apparatus complete a record of activity which is a good indication of the general revival of business.

Sizing and Warping Machinery.

Jacob K. Altemus, 2824 North Fourth St., Philadelphia, Pa., has recently introduced some improvements in connection with his sizing machinery, so that the yarn is dried thoroughly and quickly and yet without baking the sizing. This machinery has been very favorably received.

He also builds warping machines for wet or dry section work with pinless attachment which overcomes the difficulty from pin-stripes and section marks.

Richards, Atkinson & Haserick.

Among the New Year business changes is one in the style of the partnership heretofore known as Stoddard, Haserick, Richards & Co. On January 1 the name of this concern was changed to Richards, Atkinson & Haserick and the business will be carried on by the partners hitherto composing the old firm under the new name at their offices at 152 Congress St., Boston, and 8 Currier St., Bradford, Eng.

They are agents, importers and dealers of extensive lines of cotton, silk, worsted and special machinery as well as mill supplies. They are also importers of Egyptian cotton and burlap.

Many Orders Reported.

The Cocker Machine Co., 4043-47 Paul St., Frankford, Philadelphia, report that within the past few months business with them has greatly improved and they are now very busy on their general line of machinery consisting of their improved warping and beaming machines for all types of cotton textiles and their improved double acting nappers and felters for cotton and woolen goods. In an early issue of this magazine a description of their new model improved double acting napper and felter for cotton and woolen goods will prove of interest to manufacturers.

Spray Pumps.

Many a mill man has a garden or orchard which has to be protected from the ravages of insects and bugs. The Goulds Mfg. Co., Seneca Falls, N. Y., build a spray pump for hand and power spraying to meet all such requirements. In addition to this particular use they can also be used in connection with pneumatic tank service, general water supply, for white washing purposes, fire protection, etc. This company makes about everything in the way of pumps and pump supplies.

Stuart W. Cramer Opens Providence Offices.

In addition to his offices in Court House Sq., Charlotte, N. C., where an entire building is occupied, and the Candler Bldg., Atlanta, Ga., Stuart W. Cramer has found it desirable to open an office in Providence, R. I., so that the increasing business in the Eastern States in connection with the Cramer system of air conditioning and automatic regulators for humidifying and heating systems may receive more prompt attention. This office will be hearquarters for the New England representatives. Among the important recent installations of the Cramer system has been the equipment of the Manomet Mills at New Bedford, Mass.

Bulletin No. 812.

The Cell Drier Machine Co. of Taunton, Mass., has recently prepared an interesting statement of the results accomplished at extremely low costs in dye houses, bleacheries, print works and finishing establishments. It contains in addition some interesting data on the new methods of drying carbonized goods which have proved very successful.

Overlock Royalties Cut Off.

Manufacturers who have heretofore operated Overlock machines under lease from the Willcox & Gibbs Sewing Machine Co. as well as the knit goods trade generally, will be gratified to learn that the company has notified the trade that all royalties whatever covering the use of Overlock machines have been discontinued. The numerous contracts or leases covering the use of Overlock machines in the knit goods trade provided in each case for a payment by the Lessee to the Willcox & Gibbs Sewing Machine Co. of royalties at so much per dozen garments finished by the Overlock machine, these royalty payments to continue until the expiration of the Overlock patents, April 5, 1909. Coincident with the beginning of the sale of Overlock machines the company has now abandoned all royalties from January 1, 1909, instead of waiting until next April. This is a valuable concession which we are sure will be appreciated by the numerous mills where Overlock machines have heretofore been in use. This action will be a surprise to the trade in view of certain rumors which have been prevalent to the effect that the company would find an excuse for continuing the royalty system indefinitely. As stated in the company's advertisement, which will be found in another column, the Overlock machine will hereafter be sold as well as rented, the rental being on a flat monthly basis. We are informed that a considerable number of orders have already been filed with the Willcox & Gibbs Sewing Machine Co. for Overlock Machines, in addition to the large number which are already in use.

Good Demand for Steel Heddles.

The Steel Heddle Manufacturing Co., 2110 West Allegheny Ave., Philadelphia, report that a marked increase in the textile business is now being felt by them in such a manner that it is necessary for them to run extra time to fill their orders and they are now working up to their fullest capacity having orders sufficient on hand to keep them running for some little time.

Finishing Materials

The Arabol Manufacturing Company, 100 William St., New York, are large manufacturers of starches, sizing and finishing compounds, softening oils, softeners of every description and related articles. They are well equipped for producing modern compounds, based upon the best practical experience, controlled by scientific methods and investigations. They will meet any particular conditions of manufacturing, if stated with the order.

Recent Textile Patents.

BALING PRESS. 906,265. Finch McKenney, Fruitvale, Cal.

CARDING MACHINE. 906,993. Eddo V. Bates and Robert B. Robinson, Lowell, Mass.

DYEING MACHINE. 905,473. Robert P. Smith and George E. Drum, Philadelphia, Pa.

EMBROIDERING Sewing Machine Stretching Frame. 905,247. Samuel V. Swoboda, Chemnitz, Germany.

FABRICS. Apparatus for Stretching Portions of. 907,081. William H. Mitchell and Charles H. Mitchell, Leeds, England.

FABRIC. Woven. 906,463. Hovcep Sarafian, Yonkers, N. Y.

FABRIC. Woven. 905,946. William M. Stevenson, Indian Orchard, Mass.

FABRIC. Textile. 905,106. Geo. P. Schlemmer, Ann Arbor, Mich.

FABRICS Manufacture of Multicolored. 904,752. Martin Boehler, Wilhelmsbad, Germany.

KNITTING MACHINE for Stop Motion. 906,880. John B Hipwell, Reading, Pa.

KNITTING MACHINES. Mechanism for Forming Garter-tops on Stockings in Circular. 905,185. Harry A. Houseman, Philadelphia, Pa.

LOOM Draw-detecting Mechanism. 905,920. William P. Phillips and Sayers D. Eubanks, West Durham, N. C.

LOOM for Weaving. 905,830. Fernando Alsina, Barcelona, Spain.

LOOMS. Electromagnetic Stop Mechanism for Shuttle. 905,131. Daniel Bacon, New York.

LOOM-SHUTTLE. 905,670. Sumner A. Dudley. Taunton, Mass.

LOOM-SHUTTLE. 906,390. Edward Cunniff and Joseph H. Cookson, New Bedford, Mass.

LOOM. Weft Replenishing. 12,887. Nazaire Demers, Manchester, N. H.

LOOMS. Automatic Weft-replenishing Mechanism for. 905,245. Melvin L. Stone, Lowell, Mass.

SEWING MACHINE. 905,311. John J. Heys, Lynn, Mass.

SEWING MACHINE Looper Mechanism. 905,488. William M. Ammerman, New Haven, Conn.

SHUTTLE. 906,455. Jos. C. Nuver, Allentown, Pa.

SHUTTLE-MOTION Device. Positive. 905,908. Michael T. McMahon, Bridgeport, Conn.

SPINNING and Twisting Machine. Ring. 905,205. Paul A. Mayer, Muelhausen, Germany.

SPINNING or Twisting Machine Thread-guiding Mechanism. 905,386. Cyrus A. Taft, Northbridge, Mass.

SPINNING FRAME. Flier. 905,231. J. Robertson.

SPINNING MACHINE. 905,668. Ezra Dixon, Bristol, R. I.

THREAD-FINISHING Machine. Silk. 904,869. Daniel H. Haywood, New York.

Recent Textile Trade Marks Registered.

"U. S. Soldier Boy." Hosiery. Davis Hosiery Mills, Chattanooga, Tenn.

"Dove." Cloth Gloves. George L. Wolf, Mercersburg, Pa.

"Reppo." Silk Scarfs and Cravats. Opper & Levinson, New York.

"Classic Clothes." Suits and Overcoats. Eichengreen Hoffstadt & Co., New York.

"Marigold." Saxony Yarn, Shetland Floss, etc. Hibben, Hollweg & Co., Indianapolis, Ind.

"Bull Dog." Negligee and Workmen's Shirts. Sweet, Orr & Co., Newburgh, Brooklyn, N. Y.

"Adirondack." Shirts and Drawers. Stittville Knitting Co., Utica, N. Y.

"Marathon." Undershirts, Drawers. The Argyle Co., New York.

"Uo2." Undershirts and Drawers. The Argyle Co., New York.

"Forestry." Woolen Cloth. American Woolen Co., Boston, Mass.

"Squaredeal." The John S. Naylor Co., Wheeling, W. Va.

"Plaza." Nightshirts, Pajamas, etc. Tauber, Ryttenberg & Co., New York.

"Darling." Nightshirts, Pajamas, etc. Tauber, Ryttenberg & Co., New York.

"Old Bleach." Linen Piece Goods. The Old Bleach Linen Co., Randalstown, Ireland.

"Queen." Handkerchiefs. Edward E. Poor, Passaic, N. J.

"Regent." Belts Made of Silk, Cotton, Linen and Elastic Webbing. Henry W. Levy, New York.

"Hub." Spool Cotton, Sewing Cotton and Thread. The American Thread Co., Jersey City, N. J

"Huron." Spool Cotton, Sewing Cotton and Thread. The American Thread Co., Jersey City, N. J.

"Bianco." Bleached Cotton Goods in the Piece. Deering, Milliken & Co., New York.

"Yankee Doodle Clothes." Boys' and Men's Overcoats, etc. Block Bros. Clothing Co., St. Joseph, Mo.

"Permo." Cloths and Stuffs of Wool and Worsted. The Bradford Dyers' Association, Bradford, England.

"Mother's Choice." Bleached Cotton Goods in the Piece. Deering, Milliken & Co., New York.

"Bermuda Lily." Bleached Cotton Goods in the Piece. Deering, Milliken & Co., New York.

"Progress." Bleached Cotton Goods in the Piece. Deering, Milliken & Co., New York.

"Arlington Mills. Skill Wins Favor." Arlington Mills, Lawrence, Mass.

"Gilt Edge." Handkerchiefs. The International Mfg. Co., New York.

"True Blue." Handkerchiefs. The International Mfg. Co., New York.

"Banner." Handkerchiefs. The International Mfg. Co., New York.

C. E. RILEY COMPANY

65 Franklin Street, .. BOSTON, MASS.

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DIRECT IMPORTERS OF EGYPTIAN COTTON

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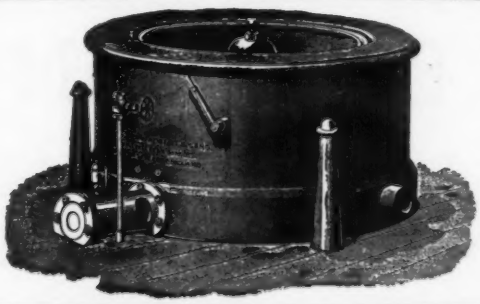
Thomas Broadbent & Sons,

Huddersfield, Eng.

PATENT DIRECT STEAM DRIVEN

HYDRO-EXTRACTORS

OVER 3500 IN USE. ALSO ELECTRICALLY DRIVEN



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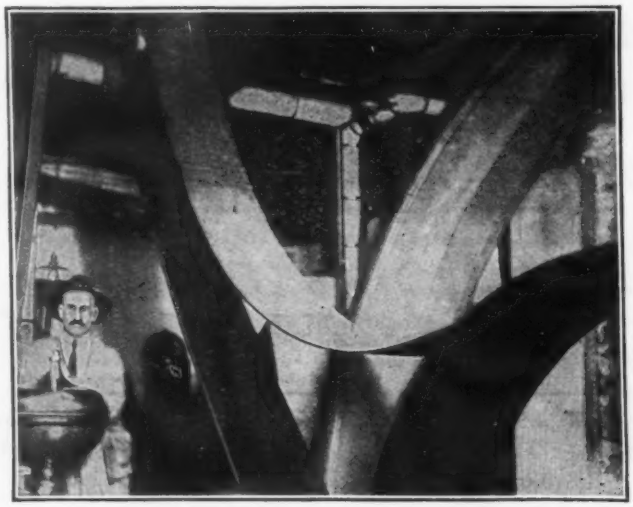

Cling - Surface Results

A good example of Cling-Surface results:

Cling-Surface treatment of belts makes and keeps them pliable, waterproof and preserved. They never dry out nor crack. Cling-Surface is not sticky, but penetrates all through the belt, where needed most, and makes the belt face like calf skin. Slipping is prevented, and every belt can be run slack and carry full loads with ease at all points.

We guarantee these results. They give the best possible belt service and only Cling-Surface does it. Ask for our special trial terms.

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BOSTON 170 Summer Street | NEW YORK 39 Cortlandt Street | PHILADELPHIA 520 Arch Street

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Danker & Marston, - - Boston

Buyers' Index

The addresses of builders of mill machinery and dealers in mill supplies, whose names appear in the following classified index, may be found upon referring to their advertisements. The Alphabetical Index to advertisers follows this classified list. Buyers who are unable to find in the classification here given such machinery or supplies as they desire, are invited to communicate with the publishers, who can, in all probability, refer them to proper sources. Advertisers whose names do not appear under desired headings will please notify the publishers. Such omissions are accidental, not intentional.

Air Moistening System.
American Moistening Co.
Bell Pure Air & Cooling Co.
Carrier Air Conditioning Co. of America.
Cramer, Stuart W.
Parks, G. M., Co.

Architects and Mill Engineers.
Ferguson, John W.
Cramer, Stuart W.

Asphalt Tanks.
Scaife, W. B., & Sons.

Automatic Feeds for Cotton and Wool.
Kitson Machine Co.
Leigh, Evan A.
Philadelphia Drying Machinery Co.
Philadelphia Textile Machinery Co.
Schofield, Wm., Co.
Woonsocket Machine & Press Co.

Bale Ties.
Acme Steel Goods Co.

Baling Presses.
Boomer & Boschert Press Co.
Philadelphia Drying Mchy. Co.
Minnich Machine Works.
Sullivan Machinery Co.

Bandings.
——See under Yarns.

Baskets.
Lane, W. T., & Bro.

Bearing Metals.
Dodge Mfg. Co.

Belting.
Burnham, E. E., Co.
Gandy Belting Co.
Rhoads, J. E., & Sons.
Shultz Belting Co.
——See also Mill Supplies.

Belt Dressing.
Cling Surface Mfg. Co.
Dixon, Jas., Crucible Co.
Shultz Belting Co.
Stephenson Mfg. Co.

Belt Lacing Machines.
Birdsboro Steel Foundry & Machine Co.

Bindings.
——See Tapes and Braids.

Bleaching Kiers.
Arlington Mch. Wks. (Arthur Birch, prop.)
Philadelphia Drying Machinery Co.
Textile Finishing Machinery Co.

Bleaching Materials.
Bosson & Lane.
Danker & Marston.
Roessler & Hasslacher Chemical Co.

Blowers and Blower Systems.
American Blower Co.
Buffalo Forge Co.
Dean Bros. Steam Pump Works.
Philadelphia Drying Machinery Co.
Sturtevant, B. F., Co.
Schnitzler, Chas. H.

Bobbins, Spools, Shuttles, Etc.
American Supply Co.
American Textile Specialty Mchy. Co.
Leigh, Evan A.
Lestershire Spool & Bobbin Co.
Tebbets, E. L., & Co.
Wilson & Co.

Bobbin Winders.
Lever, Oswald Co.
Universal Winding Co.

Boiler Inspection and Insurance.
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New England Butt Co.
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Braids.
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Brass Hinges.
Root, C. J., Co.

Bridges.
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Brushers.
——See Napping Machines.

Brushes.
Felton, S. A., & Son Co.

Burr Pickers.
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Sargent's, C. G., Sons.
Smith & Furbush Machine Co.

Calico Printers' Machinery and Supplies.
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Birch Bros., Somerville Machine Wks.
Butterworth, H. W., & Sons Co.
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Canvas Baskets.
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Caps.
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Carbonizing Machinery.
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Philadelphia Textile Machinery Co.
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Tolhurst Machine Works.

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Howard Bros. Mfg. Co.
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Riley, C. E., Company.
Stoddard, Haserick, Richards & Co.

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Blaisdell, S., Jr., Company.

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Entwistle, T. C., Co.
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Riley, C. E., Company.
Smith & Furbush Machine Co.
Stoddard, Haserick, Richards & Co.

Carders' Tools.
Brown, Wm. H., Co.

Carpet Machinery.
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Smith & Furbush Machine Co.

Castings.
Farrel Foundry and Machine Co.
Schofield, Wm., Co.

Cell Driers.
Cell Drier Machine Co.

Cement.
Atlas Portland Cement Co.

Cement Pans.
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Little, Arthur D.

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Pettes & Randall Co.

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Darrow Mann Co.

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Concrete Work and Construction.
Atlas Portland Cement Co.
Gilbreth, Frank B.

Condensers.
Dean Bros. Steam Pump Works.

Conditioning of Textile Fabrics.
New York Silk Conditioning Works.

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Dodge Mfg. Co.
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Sturtevant, B. F., Co.

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Cop Spindles.
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Cop Tubes.
American Textile Specialty Mchy. Co.
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Copper Print Rollers.
Taunton-New Bedford Copper Co.

Coppersmiths.
Badger, E. B., & Sons Co.

Copper Work for Dyers.
Badger, E. B., & Sons Co.
Butterworth, H. W., & Sons Co.
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Elliott & Hall.
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Howard & Bullough American Mach. Co.
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Mason Machine Works.
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Lorimer's, The Wm. H., & Sons Co.
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Bailey, Frank.

Dye Sticks.
Bailey, Frank.
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American Dyewood Co.
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Atteaux, F. E., & Co.
Badische Co.
Berlin Aniline Works.
Bischoff & Co.
Bosson & Lane.
Cassella Color Co.
Danker & Marston.
Farbenfabriken of Elberfeld Co.
Kalle & Co.
Ford, J. B., Co.
Geisenheimer & Co.
Jamaica Dyewood & Chemical Co.
Johnson, Chas. A., & Co.
Klipstein, A., & Co.
Leyland, Thos., & Co.
Metz, H. A., & Co.
Roessler & Hasslacher Chemical Co.
Stein, Hirsch & Co.
Sykes, Walter F., & Co.
Thayer, Ed. M., & Co.
Young, J. S., & Co., Ltd.

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Sturtevant, B. F., Company.
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Westinghouse Electric & Mfg. Co.

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General Electric Co.
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Philadelphia Textile Machinery Co.
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Watson-Flagg Engineering Co.
Westinghouse Electric & Mfg. Co.

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Electric Lighting.
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Feed Water Purifiers.
Dodge Mfg. Co.
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Feed Water Regulators.
Berry Engineering Co.

Felt Hardeners.
Farrel Foundry and Machine Co.

Felting Machinery.
Farrel Foundry and Machine Co.

Fender Boards.
Case Bros.

Filters.
Hungerford & Terry.
Norwood Engineering Co.
Scaife, W. B., & Sons.

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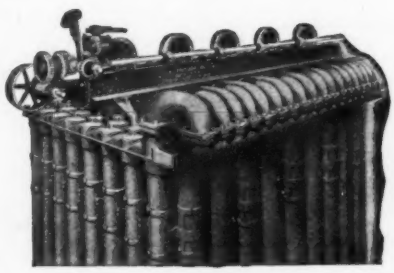
STURTEVANT
Mechanical Draft

INCLUDES THE
MOST EFFICIENT
AND
MOST SATISFACTORY FAN

STURTEVANT MOTORS and ENGINES are

especially designed for fan driving; the sets are selected to save power; they are just right in size and speed

Fuel Economizers



INCREASE PROFITS . . . . .
REDUCE POWER PLANT LABOR
REDUCE NUMBER OF BOILERS
INCREASE CAPACITY OF PLANT

MOST EFFICIENT WITH

STURTEVANT MECHANICAL DRAFT . . . .

ALL JOINTS ARE METAL-TO-METAL

Let us send you Bulletin No. 158

B. F. STURTEVANT CO., BOSTON, MASS.

General Office and Works, Hyde Park, Mass.

NEW YORK PHILADELPHIA CHICAGO CINCINNATI LONDON

Designers and Builders of Heating, Ventilating, Drying and Mechanical Draft Apparatus; Fan Blowers and Exhausters, Rotary Blowers and Exhausters; Steam Engines, Electric Motors and Steam Turbines; Pneumatic Separators, Fuel Economizers, Forges, Exhaust Heads, Steam Traps, etc.

Finishing Machinery.
——See Dyeing, Drying, Bleaching and Finishing.

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Borgner, Cyrus, Co.

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Badger, E. B., & Sons Co.

Fire Hose.
Eureka Fire Hose Co.

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Norwood Engineering Co.

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Home Insurance Co.

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Flax, Tow, Hemp and Jute Machinery.
Fairbairn-Lawson-Combes-Barbour, Ltd.

Fluted Rolls.
Hood, R. H., Company.
Leigh, Evan A.
Jefferson, Edward & Brother.
Riley, C. E., Company.
Thurston, A. G., & Son.

Flyers.
Bodden, Wm., & Son, Ltd.
Calder Machine Works.
Hopkins Machine Works.
Jefferson, Edward & Brother.
Leigh, Evan A.
Textile Machinery Co.

Fly Wheels.
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Forges.
Sturtevant, B. F., Co.

Friction Chains.
Oneida Community, Ltd.

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Friction Cones.
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Fuel.
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Hunter, Jas., Machine Co.
Kenyon, D. R., & Son.
Rodney Hunt Mach. Co.

Furnaces (Automatic Smokeless).
Murphy Iron Works.

Garnetts.
Hunter, James, Machine Co.
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Gas Blowers and Exhausters.
American Blower Co.
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Gaskets (Superheated Steam).
Power Specialty Co.

Gassing Machines.
Stubbs, Joseph.

Gauges.
Crosby Steam Gage & Valve Co.
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Gears.
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Farrel Foundry and Machine Co.
New Process Raw Hide Co.

Gear Cutting.
Farrel Foundry and Machine Co.

Gear Cutting Machine.
Whiton, The D. E., Co.

Generating Sets.
American Blower Co.
Buffalo Forge Co.
Crocker-Wheeler Co.
Sturtevant, B. F., Co.

Geyser Water Heater.
Sargent's Sons, C. G., Corp.

Greases.
N. Y. & N. J. Lubricant Co.

Harness Twine.
Moore C., & Co.

Harness and Frames.
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Heddles.
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Hoisting Apparatus.
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Pearson, J. T.
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Hosiery Labels.
Kaumagraph Company.

Humidifying Apparatus.
American Moistening Co.
Bell Pure Air & Cooling Co.
Carrier Air Conditioning Co. of America.
Cramer, Stuart W.
Parks, G. M., Co.

Hydraulic Rams.
Power Specialty Co.
Walworth Mfg. Co.

Hydro Extractors.
American Laundry Mchy. Mfg. Co.
American Tool & Machine Co.
Broadbent, Thomas, & Sons.
Dienelt & Eisenhardt, Inc.
Riley, C. E., Company.
Richards, Atkinson & Haserick.
Textile Finishing Machinery Co.
Tolhurst Machine Works.

Ice Machines.
Remington Machine Co.

Insulating and Braiding Silks.
Sauquoit Silk Mfg. Co.

Insurance (Casualty, Fire and for Loss of Profits.)
Home Insurance Co.

Investments.
Cross Creek Coal Co.

Ironing Machines for Knit Goods.
American Laundry Machinery Mfg. Co.
Consolidated H. S. & L. M. Company.

Iron Glue.
Ament, H. B.

Jacquards.
Halton's, Thomas, Sons.

Jacquard Cards.
Case Bros., Inc.

Knit Goods, Edgings, Trimmings, Etc.
Chapin, Geo. W.
Charles, W. B.
Cheney Bros.
Friedberger-Aaron Mfg. Co.
Krout & Fite Mfg. Co.
Weimar Bros.

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Paxton & O'Neill.
Stafford & Holt.

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Boss Knitting Machine Co.
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Mayo Knitting Machine & Needle Co.
National Automatic Knitter Co.
Nye & Tredick Co.
Paxton & O'Neill.
Scott & Williams.
Stafford & Holt.
Standard Machine Co.
Taylor, James.
Tompkins Bros. Co.
Walther, Otto.
Wildman Mfg. Co.

Knitting Needles and Supplies.
Breedon's, Wm., Son.
Brinton, H., & Co.
Continental Latch Needle Company.
Cooper, Chas.
Corey, Wm., Co.
Crane Mfg. Co.
Dodge Needle Co.
Excelsior Needle Co.
Grosser Knitting Machine Co.
Ives, L. T., Co.
Lamb Knitting Machine Mfg. Co.
Keystone Latch Needle Co.
Mayo Knitting Machine & Needle Co.
Wardwell Needle Co.

Lace Dressing Plant.
Simms, Geo., & Sons.

Lamps, Electric.
General Electric Co.
Westinghouse Electric & Mfg. Co.

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Loom Pickers.
Barlow, John W., Co.
Garland Mfg. Co.

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Crompton & Knowles Loom Works.
Draper Company.
Kilburn, Lincoln & Co.
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Walder, J.

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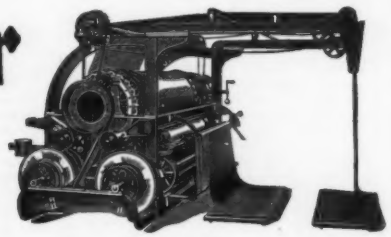
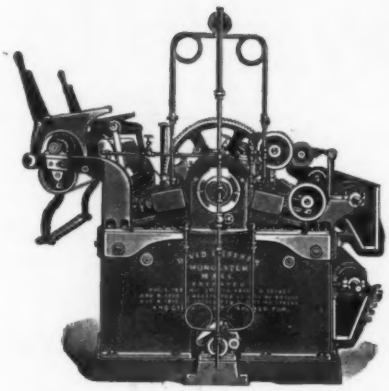
David Gessner

Worcester, Mass.

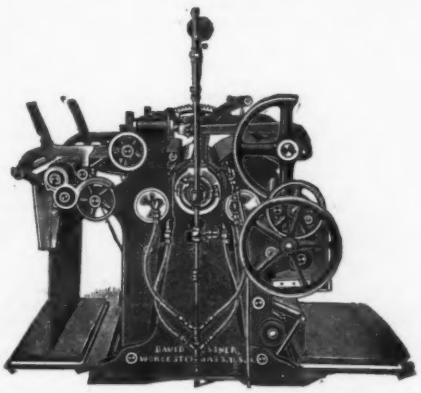




Latest Improved Cloth Finishing Machinery

—

Napping Machines and Presses a Specialty



Pneumatic Extractor No. 12
Polishing & Grinding Machine No. 13
Lacquering & Lustreing Machine No. 28
Brushing Machine No. 32

BERLIN, LONDON, SHANGHAI, VIENNA, STOCKHOLM, ST. PETERSBURG, COPENHAGEN

Schuchardt & Schutte

136 Liberty St., New York

Latest and Best

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Automatic Platen Press No. R
Stenciling Machine No. E
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Examination Tables Nos. 1, 2 & 3

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Elliott & Hall.

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Sturtevant, B. F., Co.

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Sturtevant, B. F., Co.
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Ferguson, John W.

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Lane, W. T., & Bro.
Leigh, Evan A.
Murphy, E. W., & Co.
N. Y. & N. J. Lubricant Co.
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Shaw, Victor, Ring Traveler Co.
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Leigh, Evan A.

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The following advertisements are a portion of those of superintendents and overseers, of whom full particulars are on file at this office. Manufactu ers who may be in need of such men may address them in care of Textile World Record, Boston or state their requirements directly, and the addresses of suitable men will be furnished without charge.

Mr. C. T. Donlevy, a practical mill overseer and superintendent, who has a wide acquaintance with mill men, gives special attention to this department. He would be pleased to hear from any of his friends who may be interested. Address Textile World Record, 144 Congress St., Boston, Mass.

COTTON SUPERINTENDENTS.

Superintendent of a cotton mill; worked on yarns from 4s to 100s; familiar with Lowell, H. & B., Whitin, Fall River, Saco and City machines; will not go anywhere but to the Southern States; 43 years of age, married; good reference. 4252, Textile World Record, Boston, Mass.

Superintendent or Agent of cotton mill; position wanted by a man 43 years of age, married, American; has worked on all kinds of cotton and worsted goods, and is familiar with Draper, Crompton & Knowles, Lowell, Whitin, Mason, Kilbourn and Lincoln looms; good references. 3669, Textile World Record,. Boston, Mass.

Manager, Superintendent, buyer or cost accountant in a cotton mill; position wanted by a man 30 years of age, American, single; has had a practical training in the manufacturing of cotton goods; good references. 3834, Textile World Record, Boston, Mass.

Cotton Superintendent; has been boss carder, ring spinner and comber on all kinds of cotton yarns, hosiery yarn a specialty; first class references; age 44, married. 3025, Textile World Record, Boston, Mass.

Superintendent or Assistant Superintendent in a cotton warp or thread mill. 28 years of age, married. Worked on all kinds of glazed thread, all numbers, also cotton warps of all kinds. Familiar with all kinds of machinery. Will go any place for a good position. Good reference. 4557, Textile World Record, Boston, Mass.

Superintendent of a cotton cloth mill; worked on fine and coarse, plain and fancy goods, including ginghams, corduroys khaki goods, lawns, etc. Familiar with all makes of machinery; good reference; 49 years of age, married. 4122, Textile World Record, Boston, Mass.

Superintendent or Agent of a cotton mill; worked on cotton yarns and cloths; considered an expert on either; familiar with all makes of machinery; good reference; 50 years of age, married. 4130, Textile World Record, Boston, Mass.

SUPERINTENDENTS AND DESIGNERS.

Superintendent or designer; worked on worsteds, cotton worsteds and woolens; 48 years of age, married; good reference. 4241, Textile World Record, Boston, Mass.

Superintendent and Designer; position wanted by a man 30 years of age, English; has worked on all kinds of fancy cotton goods, and is familiar with all kinds of cotton looms; good references. 3682, Textile World Record, Boston, Mass.

Superintendent and Designer in a woolen or worsted mill; worked on all kinds of men's and women's wear, worsted, wool, shoddy and cotton mixes and piece dyes; familiar with all kinds of woolen machinery; 43 years of age, married; good reference. 4610, Textile World Record, Boston, Mass.

Designer in a Small or assistant in a large mill. Worked on fancy worsteds, cotton worsteds, cassimeres, piece and cross dyes. Familiar with Crompton & Knowles looms. Will not go West, South or Canada. Would prefer a position in Massachusetts, Rhode Island or Connecticut. Good reference. 25 years of age. 4678, Textile World Record, Boston, Mass.

Superintendent and Designer, or assistant superintendent; age 34, married; worked on cloths ranging from all cotton to all wool and worsteds, such as cotton worsteds, jeans, army cloths, kerseys, etc.; excellent references. 3148, Textile World Record, Boston, Mass.

WOOLEN SUPERINTENDENTS.

Superintendent or assistant superintendent; worked on plain and twill flannels, mixes, broad cloths and cloakings; familiar with Davis & Furber and Crompton & Knowles machines; 40 years of age, married; good reference. 4243, Textile World Record, Boston, Mass.

Assistant Superintendent, superintendent or designer of a woolen, yarn spinning or weaving mill; worked on suitings, fine dress goods, flannels, blankets, friezes, worsteds, etc.; familiar with Johnson & Bassett, Davis & Furber, Parks & Woolson machines; will not go West or South; 40 years of age, married; good reference. 4234, Textile World Record, Boston, Mass.

Superintendent of a woolen yarn mill; familiar with all kinds of yarn, wool, shoddy and cotton mixes; good knowledge of buying stock and experienced in dyeing yarns in stock; 33 years of age, Scotch; good reference. 4604, Textile World Record, Boston, Mass.

Superintendent of a Woolen, cloth or yarn mill. Might consider a good position as overseer of carding. Worked on all kinds of woolen goods, yarns made from wool, cotton and shoddy mixes. Understands all makes of carding machinery. 44 years of age, married. Good reference. 4613, Textie World Record, Boston, Mass.

Superintendent of a Woolen Mill, wool, cotton or wool waste buyer. 42 years of age, married. Worked on woolens, plain and fancy, also worsteds. Will go anywhere for a good position. Good reference. 4587, Textile World Record, Boston, Mass.

Overseer of Finishing, or would accept a good boss burling or sewing position; worked on all kinds of woolen goods, high grade, plain and fancy worsteds, cotton worsteds, rain cloths, dress goods, etc.; familiar with all makes of finishing machinery; 30 years of age, married; good reference; will not go West, South or Canada. 4198, Textile World Record, Boston, Mass.

Assistant Superintendent or overseer of dressing; position wanted by a man 30 years of age, married and American; has worked on fancy cotton woolens and worsteds, and all kinds of high and low grade goods; is familiar with all kinds of woolen and cotton machinery; good references. 3537, Textile World Record, Boston, Mass.

Assistant Superintendent in a woolen mill or an office position wanted by a man 31 years of age, single. Has had experience on low grade kerseys, cheviots, broad cloths, meltons and fancy cassimeres. Would prefer a position in New England and would work for reasonable wages if there was a chance for advancement. Good reference. 4543, Textile World Record, Boston, Mass.

Agent or Superintendent of a woolen or worsted mill. Worked on all classes of worsted and woolen goods; can furnish first class reference. 50 years of age, widower. 4681, Textile World Record, Boston, Mass.

Superintendent of Woolen Mill. Worked on cassimeres, unions, jeans and woolens; understands all machinery and is a first class man on cards and jacks; good reference, 50 years of age, married. 4113 Textile World Record, Boston, Mass.

Superintendent or Manager of a woolen mill. Worked on cotton carded dress goods, men's suitings, worsted men's wear and worsted dress goods. Understands all makes of machinery. Will not go West, South or Canada. Good reference. 30 years of age, married. 4652, Textile World Record, Boston, Mass.

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Overseer of Knitting; worked on ladies' seamless hosiery, ribbed, topped and plain; familiar with Acme, Banner, Scott & Williams, Hemphill, and some experience on Standard; will not go to Canada; good reference; 27 years of age, married. 4255, Textile World Record, Boston, Mass.

Superintendent or overseer of knitting in a hosiery mill; position wanted by a man 33 years of age, single; has worked on ladies', men's and misses' wool, worsted and cotton seamless hosiery on Wildman, Scott & Williams, Ruth and Brinton ribbers, Hepworth and Beatley loopers, Acme and Geo. D. Mayo automatic foot machine; good recommendations. 3698, Textile World Record, Boston, Mass.

Superintendent or manager of hosiery mill; position wanted by a man 37 years of age, married. American; is experienced on woolen, worsted and cotton hosiery; is familiar with all makes of knitting machinery, but prefers the Mayo, Acme or Standard; first class references. 3650, Textile World Record, Boston, Mass.

KNITTERS.

Overseer of Ring Spinning; worked on sales yarn, hosiery and duck; also buy yarn from 4s to 24s on duck work; familiar with all makes of frames in the ring spinning room; will not go West, South, or Canada; good reference; 39 years of age, married. 4254, Textile World Record, Boston, Mass.

Overseer of Woolen Spinning, or spinning, spooling and twisting; worked on almost all kinds of goods and all kinds of stock; familiar with Johnson & Bassett and Davis & Furber makes of machinery; will not go West, South or Canada; good reference; 43 years of age, married. 4236, Textile World Record, Boston, Mass.

Overseer of Spinning, twisting, drawing, reeling, warping, winding and jack spooling; worked on botany, lustres, cross braids, mohair, alpaca, cashmere, etc.; familiar with Prince, Smith, Hall & Stell, J. & R. and Lowell makes of machinery; will not go to Canada; 35 years of age, married; good reference. 4233, Textile World Record, Boston, Mass.

Overseer Ring Spinning; have had charge of warp filling spinning and hosiery yarn 6s to 60s spooling; warping, twisting, slashing, drawing-in; worked on all kinds of yarn; comb peelers, Egyptian and American, also colored work; familiar with nearly all makes of spinning frames; 27 years of age, an American; am employed at present; go anywhere for good position; first class recommendations. Address, Ring Spinner, care T. W. Record, Boston, Mass.

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Overseer Ring Spinning. Have had charge of warp filling spinning and hosiery yarn 6s to 60s; spooling, warping, twisting, slashing, drawing-in; worked on all kinds of yarn. Court peelers Egyptian and American also colored work; familiar with nearly all makes of spinning frames. 27 years of age an American employed at present, go anywhere for good position; first class recommendations. Address Ring Spinner, care T. W. Record, Boston, Mass.

Overseer of Woolen Spinning. Familiar with the D. & F. machines. Worked on all kinds of stock, wool, cotton and shoddy mixes. Would prefer a position in the N. E. States. Good reference. 34 years of age, married. 4598, Textile World Record, Boston, Mass.

Overseer of Ring Spinning, spooling and warping. Worked on sheetings, ducks, crash, etc. Familiar with all makes of ring spinning machinery. Good reference. 50 years of age, married. 4688, Textile World Record, Boston, Mass.

Overseer of Woolen Spinning, twisting and spooling. Position wanted by a married man, 45 years of age, American. Worked on all classes of goods, including knit goods. Familiar with the D. & F., J. & B., and Bancroft mules. Will accept a position anywhere but R. I. and N. J. Good reference. 4581, Textile World Record, Boston, Mass.

Overseer of Knitting or machine fixing; position wanted by a married man, 33 years of age, American; worked on all kinds of up-to-date hosiery; familiar with ribbers, Wildman, Brenton, Hepworth and Branson machines; prefers N. E. States; could take a position at once. 4568, Textile World Record, Boston, Mass.

Overseer of Knitting in a small or second hand in a large knitting mill, on all makes of underwear; familiar with the Wildman, Stafford & Holt, Campbell and more particularly Crane circular machines; 22 years of age, single; good reference. 4619, Textile World Record, Boston, Mass.

Overseer of Knitting in a small mill or fixer on latch needle machines in a large mill; worked on all kinds of seamless hosiery, wool and worsted; some experience on cotton; familiar with the Geo. D. Mayo, Excelsior, Invincible and some experience on loopers; good reference. 4607, Textile World Record, Boston, Mass.

WEAVERS.

Overseer of Weaving; worked on fancy shirtings, lenos, ginghams, fancy silk ginghams, linen goods, vestings and men's and ladies' suitings, in worsted and cotton; familiar with Crompton & Knowles looms; good reference; 48 years of age, widower. 4248, Textile World Record, Boston, Mass.

Overseer of Cotton Weaving. 39 years of age, married, American. Has worked on automobile tire fabrics, oils and sugar refining fabrics and all heavy duck goods and also plain goods. Familiar with the Crompton & Knowles, Lowell, Whitin and Draper looms. Will go any place for a good position. 4505, Textile World Record, Boston, Mass.

Overseer of Cotton Weaving, second hand, or overseer of cloth room; worked on sateens, twills, sheetings, prints, muslins and all kinds of plain goods; familiar with Draper, Colvin and Whitin looms; prefers New England, but will go any place for a good position; 45 years of age, married; good reference. 4621, Textile World Record, Boston, Mass.

Overseer of Cotton Weaving on plain and fancy cotton goods, all kinds of looms. Will not go West, South or Canada; good reference, 43 years of age, married. 4111 Textile World Record, Boston, Mass.

Overseer of Weaving or second hand in a cotton mill. 25 years of age, married, American. Worked on twills, sheetings, ducks, lenos, shirtings and motor tire fabrics. Good reference. 4545, Textile World Record, Boston, Mass.

Overseer of Cotton Weaving; 44 years of age, English, married; worked on all kinds of cotton goods, plain and fancy; familiar with American and English looms; will go any place for a good position; good reference. 4508, Textile World Record, Boston, Mass.

Overseer of Cotton Weaving; has worked on plain sateens, fancy bedford cords, jacquard goods, lenos, cotton, silk and mercerized yarns, single and two ply; familiar with all makes of cotton looms and also jacquards, single and double lift; will not go West or South. 4503, Textile World Record, Boston, Mass.

Overseer of Cotton Weaving; a married man, 32 years of age, American; worked on plain and fancy sateens and jacquard effects; also all kinds of cotton cloths, particularly fine goods and silks; familiar with the Draper, Whitin, Colvin and jacquard looms; good reference. 4516, Textile World Record, Boston, Mass.

Overseer of Cotton Weaving; 47 years of age; worked on ducks, lawns, stripes, plaids and all kinds of twilled cotton goods; familiar wth Draper, Lowell, Whitin, Crompton & Knowles looms; will go any place for a good position; good reference. 4510, Textile World Record, Boston, Mass.

Overseer of Cotton Weaving; 38 years of age, married; worked on cotton dress goods, white and colored, lenos, ginghams, sateens, tickings, cottonades and cassimeres; familiar with the Crompton & Knowles, Lowell, Kilburn, Mason, jacquard and English revolving box looms; good reference. 4578, Textile World Record, Boston, Mass.

Promotion for Textile Workers

The most practical, surest, and quickest way in the world for ambitious textile workers to secure promotion is offered by an institution through whose assistance thousands of men have already advanced to better positions and larger salaries. They have done this in their own homes, in their spare time, and at an insignificant cost. We will cheerfully explain, free of charge, how we can adapt our plan to **YOUR** personal needs and income if you will write us today, stating the position you would like to secure.

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MISCELLANEOUS.

An Expert Textile Machine Designer

And draughtsman with knowledge of English and American methods. Specialty developing new inventions. Wishes to change. Address "Methods" care Textile World Record.

Overseer of Drawing, spinning or section hand; worked on mohair, alpaca, lustre, botany and cross braids; familiar with all kinds of machinery; will not go to Canada; 32 years of age, married; good reference. 4231, Textile World Record, Boston, Mass.

Overseer of Bleaching; worked on all kinds of knit goods, yarns, cottons and worsteds; familiar with almost all kinds of machinery; 40 years of age, married; will not go South; good reference. 4242, Textile World Record, Boston, Mass.

Overseer of Cloth Room (colored preferred), or cloth inspector; worked on colored and white, mercerized, dress goods, fine lawns, sateens, silicias, skirtings, vestings, chambrays, seersuckers, colored ducks, bleached and finished goods, etc.; familiar with folding machines, Elliot & Hall, or Curtis & Marble, also burlers and winders of the same makes. Schofield or Windle doublers; will not go West or South; good reference. 4250, Textile World Record, Boston, Mass.

Overseer of Spooling, twisting, winding and reeling in a cotton mill. 36 years of age. Worked on hosiery warp and thread, Sea Island, Egyptian, Peeler and Peruvian and waste yarns. Familiar with the Lowell, Draper, Whitin, Dobson & Barlow, Fales & Jenks and Universal winders. Will not go West or Canada. Good reference. 4580, Textile World Record, Boston, Mass.

Overseer of Spooling, twisting and skein winding. Position wanted by a man 23 years of age, single. Worked on woolens, worsteds and cotton worsteds. Familiar with the Worcester Warp Compressing Company's spoolers, Davis & Furber and Johnson & Bassett machines. Would prefer a position in Mass., R. I., or Conn. Good reference. 4569, Textile World Record, Boston, Mass.

Young Man Wants a Position in a Cotton Yarn mill in Fall River or New Bedford. Has had experience in the shipping department and as receiving clerk. Would like a position where he could learn something about raw stock, in the carding or spinning room. Would work for reasonable wages. Good reference. 4524, Textile World Record, Boston, Mass.

Clerk or Confidential Clerk to superintendent of a woolen or worsted mill. Has been employed in leading mills in Massachusetts. Good reference. 39 years of age, married. 4651, Textile World Record, Boston, Mass.

Chief Engineer and electrician, or master mechanic where stress is laid on a thorough knowledge of the power plant; familiar with engines, boilers, water wheels, electrical machinery, etc; 40 years of age, married; good reference. 4143, Textile World Record, Boston, Mass.

Second Hand in the combing department in a worsted mill; worked on coarse and fine wools; familiar with English, Crompton and Noble combs; 40 years of age, married; good reference; two workers in the family. 4123, Textile World Record, Boston, Mass.

Overseer of Warping and spooling in a worsted or woolen mill; worked on fancy worsteds, men's wear, dress goods, woolen cassimeres, beavers, doeskin, broad cloths and fancy dress goods; familiar with various makes of warping and spooling machinery; 48 years of age, married; good reference. 4147, Textile World Record, Boston, Mass.

Chief Engineer, master mechanic or superintendent. Married man, 31 years of age. Familiar with machinery of all kinds and purposes, mostly for power. Hydraulic, electrical, direct, alternating current, high speed, engine, condensing, high pressure and elevators. Prefers New England. Good reference. 4561, Textile World Record, Boston, Mass.

CARDERS.

Second Hand of carding; worked on meltons, kerseys, venetians, broad cloths, ladies' dress goods, men's suitings, cotton, wool and shoddy mixes; familiar with D. & F., Lombard, Cleveland, and all kinds of American makes of carding machinery; will not go to Me., Pa., N. Y., N. J., West, South or Canada; good reference; 38 years of age, married. 4251, Textile World Record, Boston, Mass.

Overseer of Woolen or worsted carding; worked on all classes of goods; cotton, wool and shoddy mixes, silk noils, and camel hair; familiar with the D. & F. and Cleveland cards; also worked on garnetted and shoddy pickers; will not go West, South or Canada; 43 years of age, married; good reference. 4249, Textile World Record, Boston, Mass.

Overseer of Cotton Carding or Second Hand. Worked on fine and coarse work, combed and carded, understands all American and English makes of cards, 34 years of age, married. 4116 Textile World Record, Boston, Mass.

Overseer of Woolen Carding. Worked on wool shoddy and cotton mixes, on English and American cards. 36 years of age, married. Good reference. 4662, Textile World Record, Boston, Mass.

Overseer of Carding and spinning or woolen carding and spinning. Might accept a position as second hand in a large mill. 38 years of age. Worked on cassimeres, dress goods, overcoatings, horse and bed blankets. Familiar with the D. & F., Lumbard, Furbush, Cleveland and Platt mules. Will not go West, South or Canada. Good reference. 4582, Textile World Record, Boston, Mass.

Overseer of Woolen Carding; worked on all classes of woolen goods made from wool, cotton and shoddy mixes, and all makes of American cards; 43 years of age, married; good reference. 4127, Textile World Record, Boston, Mass.

Overseer of Woolen Carding. Worked on all kinds of woolen goods made from wool, shoddy and cotton mixes. Familiar with D. & F., Smith & London cards. 39 years of age, married. Good reference. 4632, Textile World Record, Boston, Mass.

FINISHERS.

Overseer of Finishing, wet finisher or general second hand in a woolen mill; familiar with woolens and worsteds, cotton worsteds, cotton mixes, thibets and steam finished goods; also all makes of finishing machinery; will accept a position most any place; 28 years of age good reference. 4602, Textile World Record, Boston, Mass.

Overseer of Finishing, second hand or finished percher; worked on broadcloths, kerseys, thibets, sackings, venetians, cassimeres, unions, cotton mixes, dress goods and worsteds; understands all makes of finishing machinery; prefers a position in the New England States. 4611, Textile World Record, Boston, Mass.

Supt., Asst. Supt. or Overseer of Finishing on cotton wool underwear and overshirts; understands the manufacturing of these goods from raw stock to finished fabric, Davis & Furber cards and jacks, Tompkins, Campbell & Clute and Cooper knitting machines, good reference, 40 years of age, married. 4109 Textile World Record, Boston, Mass.

Overseer of Finishing, cloth inspector or shipping clerk. Worked on cotton worsteds, worsted men's wear, rain cloths and cheviots; good reference, 38 years of age, married. 4693 Textile World Record, Boston, Mass.

Overseer of Woolen or Worsted Finishing. Worked on wool and worsted goods, cotton worsteds, union cassimeres, beavers, meltons kerseys, etc.; familiar with American and English finishing machinery; will not go South, or N. J.; good reference, 40 years of age, married. 4689 Textile World Record, Boston, Mass.

Overseer of Woolen or worsted finishing. Worked or rain cloths, wool and worsted, unions and cotton worsteds. Familiar with all makes of finishing machinery. Good reference. 4595, Textile World Record, Boston, Mass.

MISCELLANEOUS

Overseer of Finishing or second hand; worked on broad cloths, kerseys, thibets, dress goods, sackings, cassimeres, covert cloth, and other classes of face goods, granites doe skins, etc.; familiar with all makes of woolen finishing machinery; 28 years of age; good reference. 4245, Textile World Record, Boston, Mass.

Overseer of Finishing; worked on meltons, kerseys, broad cloths, chinchillas, cassimeres, dress goods, worsteds, both mix and piece goods; familiar with all American makes of machinery; will not go West, South or Canada; 42 years of age, married; good reference. 4235, Textile World Record, Boston, Mass.

Overseer of Finishing: worked on most all kinds of woolens, steam finish worsteds, cotton worsteds and piece dyes; familiar with most all kinds of machinery; 50 years of age, married; good reference. 4238, Textile World Record, Boston, Mass.

Overseer of Finishing; worked on beavers, kerseys, overcoatings, dress goods, cheviots, unfinished worsteds, carriage cloths, worsteds, cotton worsteds, cross dyes and resists; familiar with all makes of machinery; 27 years of age; good reference. 4239. Textile World Record, Boston, Mass.

Superintendent of cotton finishing works; worked on cotton dyed goods and prints, such as sheetings, sateens, drills, pocketings, suitings, linings, clay filled work and like nature; will not go to R. I., Conn., Me., Vt., Pa., N. J., West, South or Canada; 40 years of age; good reference. 4240, Textile World Record, Boston, Mass.

Overseer of Finishing in a woolen mill. Worked on broadcloths, carriage and billiard cloths, meltons, cassimeres, worsteds, thibets, etc. Familiar with all makes of machinery. 40 years of age, married. Will not go West, South or Canada. 4645, Textile World Record, Boston, Mass.

Overseer of Woolen Finishing. Position wanted by a man 40 years of age, married. Worked on woolen goods, cotton warps, cotton mixtures and a variety of woolen goods. Familiar with all kinds of machinery used in the finishing department. Good reference. 4562, Textile World Record, Boston, Mass.

Overseer of Finishing of a small mill, second hand in a large mill, or overseer of burling and sewing. 27 years of age, married. Worked on fancy cassimeres, kerseys, meltons, thibets, beavers, broad cloths, dress goods and worsteds. Familiar with the different makes of finishing machines. Will not go to Penn., West, South or Canada. Good reference. 4579, Textile World Record, Boston, Mass.

Overseer of Finishing in a cotton mill, shipping clerk or boss weaver. Worked on ducks, sheetings, shirtings, tickings, denims, cottonades, ginghams, bed spreads, etc. Familiar with all makes of finishing machinery, C. & K., Lowell and Draper looms. Good reference. 30 years of age, married. 4639, Textile World Record, Boston, Mass.

Overseer of Wet Finishing or second hand in fulling room. Worked on low and high grade woolens and worsteds. Good reference. 28 years of age, single. 4680, Textile World Record, Boston, Mass.

Overseer of Finishing, or second hand in a large mill; married, 28 years of age; worked on fancy and plain worsteds, woolens, thibets, cotton worsteds, broadcloths, dress goods and kerseys; familiar with the different makes of machines; will not go West, South or Penn.; good reference. 4574, Textile World Record, Boston, Mass.

Overseer of Finishing; worked on face goods, kerseys, broad cloths, cassimeres, and all kinds of woolens and worsteds; familiar with all modern finishing machinery; will not go West, South or Canada; 42 years of age, married; good reference 4139, Textile World Record, Boston, Mass.

Overseer of Finishing; worked on face finish; worsteds, woolens, dress goods, cotton mixes, cotton and shoddy; familiar with all makes of up-to-date machinery; will go anywhere for a good position; good reference; 45 years of age, widower. 4141, Textile World Record, Boston, Mass.

DYERS.

Overseer of Dyeing; worked on worsted, piece, yarn, wool and shoddy; 45 years of age, married; good reference. 4227, Textile World Record, Boston, Mass.

Overseer of Dyeing; worked on worsted and cotton yarns, all kinds of worsted, woolen and union piece dyes, rain cloths, raw stock, rags, resists, and yarns; will not go to Canada; 30 years of age; good reference. 4246, Textile World Record, Boston, Mass.

Overseer of Dyeing. Worked on worsted, wool, slubbing, piece dyes and some union stock. Good reference. 33 years of age, married. 4663, Textile World Record, Boston, Mass.

Overseer of Dyeing; worked on cassimeres, cheviots, kerseys, broad cloths, meltons, worsteds in dress goods and men's wear; familiar with wood, alizarine, aniline, and union colors; indigoes on wool, cotton, shoddy, silk noils; has had a wide experience on piece dyeing, men's wear and worsteds; 50 years of age, married; good reference. 4135, Textile World Record, Boston, Mass.

Overseer of Dyeing. 48 years of age, American, married. Worked on raw stock, slubbing, yarns, piece dyes, indigo and hydrosulphate vats. Good reference. Could take a position at once. 4523, Textile World Record, Boston, Mass.

Overseer of Dyeing or assistant superintendent of a woolen mill. Worked on dress goods, union cassimeres, thibets, overcoats, suitings, piece dyes, raw stock, cross dyes, fancy shoddies, a specialty. Prefers a position in the N. E. States. Good reference. 27 years of age, married. 4657, Textile World Record, Boston, Mass.

Second Hand in dye house. Position wanted by a young man 22 years of age. Graduate in chemistry and dyeing in textile school. Has had four years' experience in mills, two as second hand, two as overseer of dyeing. Worked on men's, ladies' worsted piece dyes, stock and worsted and cotton yarns. Good reference. 4546, Textile World Record, Boston, Mass.

DYERS.

Dyer, Bleacher or dyestuff demonstrator; worked on cotton and worsted skeins, cotton warps, cotton and wool raw stock, all kinds of knit goods, underwear, roll, garment and hosiery; familiar with all kinds of dyeing and drying machinery; will not go to Canada; 41 years of age, married. 4244, Textile World Record, Boston, Mass.

Overseer of Dyeing; 34 years of age, single; has worked on serges, wool and worsted, thibets, cheviots, kerseys, cotton and wool raw stock, and cotton and worsted yarns; is familiar with all makes of dyeing machinery; good reference; will not go West, South or Canada. 4519, Textile World Record, Boston, Mass.

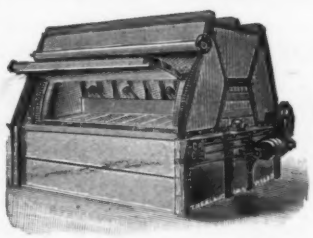
Overseer of Dyeing and starching cotton piece goods; position wanted by a man who has had a wide experience on all kinds of cotton piece goods; is familiar with jig, two and three box machines, also one box padding machine; 45 years of age, American; good reference. 3781, Textile World Record, Boston, Mass.

Overseer of Dyeing; married, 29 years of age; has worked on raw stock, piece dyes, cotton, wool, worsted yarns and understands carbonizing in the piece or rags; good reference; could take a position at once. 4094, Textile World Record. Boston, Mass.

Overseer of Dyeing. Worked on resist colors, develop shades in cotton worsted, wool; stock dyeing and yarns. Good reference. 40 years of age, married. 4679, Textile World Record, Boston, Mass.

Overseer of Dyeing. Worked on raw stock, slubbing, yarns and piece dyes. Will not go West, South or Canada. 38 years of age, married, English. 4687, Textile World Record, Boston. Mass.

Overseer of Dyeing. Worked on dress goods, fancy cassimeres, cross dyes, hosiery, flannel, wool, cotton and shoddy, raw stock; prefers New England, 45 years of age, married, good reference. 4691 Textile World Record, Boston, Mass.



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MACHINES
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2 MONTHS' TRIAL
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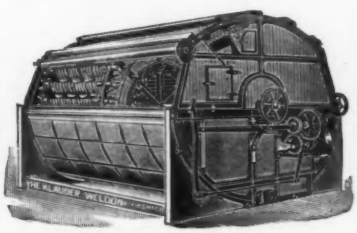

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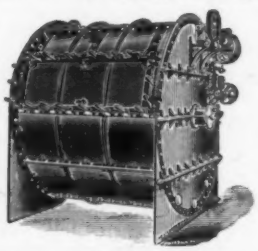
THE KLAUDER-WELDON DYEING MACHINE COMPANY

P. O. Box K, AMSTERDAM, N. Y.

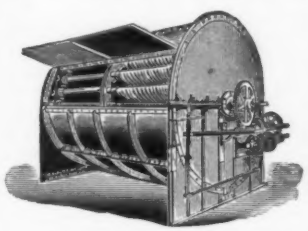
Machines for Dyeing, Bleaching and Scouring Woolen, Worsted, Cotton and Silk Skeins—Slubbing—Raw Cotton and Wool, Waste, Rags, Shoddy, Hosiery, Underwear, Hats, Caps, Knit Cloth, Tapes, etc.



SULPHUR HOSIERY MACHINE.

Special Machines for Sulphur Colors

WILL EARN THEIR COST IN
LABOR ALONE
IN FROM
6 TO 12 MONTHS
ACCORDING TO CAPACITY



SULPHUR SKEIN MACHINE.

The Best Value

The largest pair of shoes don't always mean the best value. It's the shoes that fit that give the value. So with

Wyandotte Textile Soda

It's the soda that fits the needs of the wool and cloth scourer and fuller, the soap builder, the acid neutralizer, the setter and brightener of colors. We only ask that you let us show you.

Order from your supply house.

None Genuine except with card bearing this Trade Mark

In Every Package.

The J. B. Ford Co., Wyandotte, Mich.

Sole Manufacturers

THIS SODA HAS BEEN AWARDED THE HIGHEST PRIZE WHEREVER EXHIBITED.

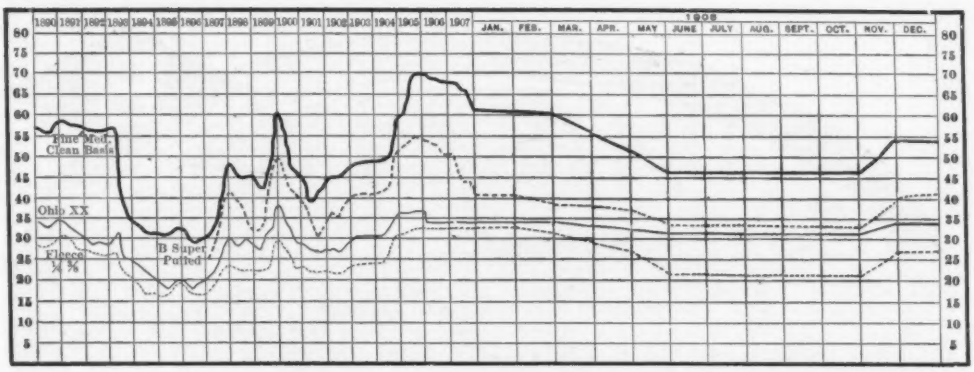


CHART SHOWING RANGES IN THE PRICE OF WOOL TO DATE.

The Wool Market.

There has been a lull in the wool market following the spurt after election. This change may be ascribed to various influences, among them the failure of the goods market to advance with wool, and the growing fear of tariff changes next summer. Manufacturers are showing a disposition to buy only for actual requirements and leave the speculative side of the market to the dealers. A fairly large volume of wool has been taken by the mills since Nov. 3, but much of the business during the flurry was between dealers, and as a result there is a good deal of wool now being held by dealers at higher prices, while they wait for a chance to unload it on the mills. Tariff revision is the only important factor now holding the wool market back. Even this is not looked upon as really serious by the general trade, the prevailing sentiment being optimistic. With a prompt and businesslike settlement of the fiscal question at Washington there is no reason to doubt but that the wool trade will enjoy a period of healthy activity.

Facts and Gossip.

Michigan, Port Huron. John L. Fead & Sons report that they have had good business during the past few months and have run part of the spinning and knitting overtime. They may add a few knitting machines in the near future. Heavy mittens, socks and miner's and lumbermen's socks are manufactured. The company has capital stock of $50,000.

New Jersey, Camden. A charter has been granted to Hall Guenther, Inc., with capital stock of $300,000, to manufacture hosiery and silk fabrics. Paul Guenther, Charles Mechell and Charles Kailenstroth are the incorporators. It is understood that this company takes over the business of Paul Guenther at Dover, N. J.

Pennsylvania, York. At the present time the York Knitting Mills Co., Inc., are erecting a new brick building, two stories high, with basement, 50 by 100 ft. The finishing department will be installed in the new building and the offices of the company will also be located there. This will leave the old building entirely devoted to knitting. A number of new Standard knitters, Brinton ribbers, and Hepworth loopers will be installed, giving the plant a capacity of 1,000 dozen per day. They state that on their coarse lines of goods they are unable to fill orders, while on the finer grades the demand is not so great. W. F. Bay Stewart is president, J. T. Kopp is treasurer and general manager, and F. J. Cartledge is superintendent and buyer. The York Mills also operate a complete dye house and paper box department.

Pennsylvania, York. Within a short time the Crystal Hosiery Mills have increased their number of knitting machines. This plant has been kept in full operation for the past year on their line of seamless half hose.

Pennsylvania, York. A change has been made in the officers of the Acme Hosiery Co. Geo. W. Rennoll, formerly treasurer, has been elected president to succeed Henry Musser, and Geo. J. Sowers, superintendent, is now also treasurer. The machinery equipment has been increased lately and they report enough orders are on hand to run the plant until next spring.

*Tennessee, Bristol. It is reported that a dyeing department will be added to the branch plant of the Jonesville Manufacturing Co., recently started in this city. About $2,000 will be invested in this improvement.

Wisconsin, Delavan. An addition, 50 by 150 feet, is being erected for the Bradley Knitting Company. Construction will be pushed so as to have the building ready for the new equipment as early as possible. They expect to have the new addition in operation in April, 1909. Grosser full automatic power machines have been ordered.

*Wisconsin, Manitowoc. Grosser circular and full automatic flat machines will be installed in the addition being erected for the Wisconsin Knitting Mills.

A STATEMENT

IN answer to numerous questions, we take this opportunity to state just what our interest is in "The Barrett Specification."

For many years we have manufactured a very large proportion of the coal tar pitch and felt used in constructing what are known as "gravel" or "slag" roofs, and where these materials have been *properly applied* in sufficient quantity the result has been a roof-covering absolutely unequalled.

There are numerous buildings all over the country which carry gravel roofs which have been in use from 15 to 20 years and are still in serviceable condition.

The cost of these roofs in most cases is *lessthan ¼ of a cent* per square foot per year of service.

It is of vital importance to us, as the largest manufacturers of this class of roofing material, to have these results obtained wherever or by whomever gravel roofing is used.

The Barrett Specification covers explicitly the quality and quantity of materials to be used and best method of applying a standard Coal Tar Pitch, Felt and Gravel or Slag roof.

Our effort is to have this Specification used wherever such roofing is applied. We know that a roof laid in accordance therewith will give better service than any other kind of roofing and at *lower cost*.

Booklet covering the subject and containing the Specification in full will be mailed free on request.

Barrett Manufacturing Company

New York Chicago Philadelphia Boston St. Louis Cleveland Pittsburg
Cincinnati Kansas City Minneapolis New Orleans London, Eng.

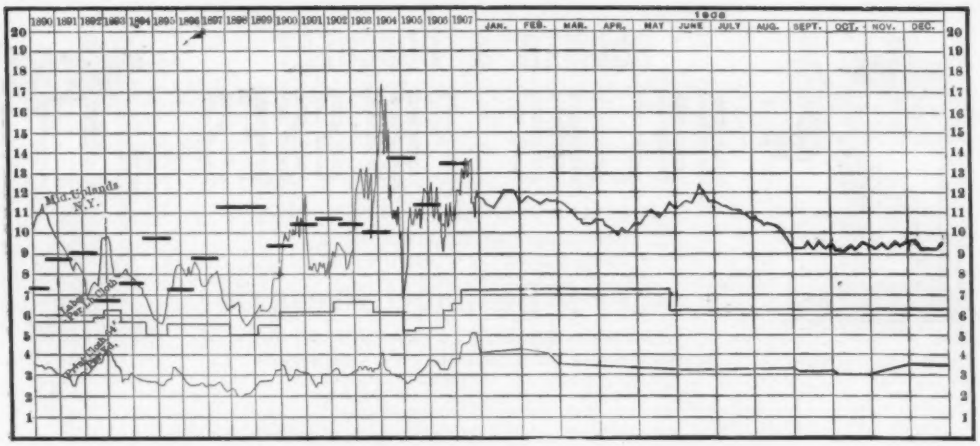


CHART SHOWING RANGE IN THE PRICE OF COTTON TO DATE.

The short, heavy, horizontal lines indicate the size of the cotton crops in millions of bales.

The Cotton Market.

Prices have been almost stationary since our last report and speculative operations have been missing. Foreign and domestic spinners have taken cotton in large quantities, which has gone far to offset the heavy receipts, which are the largest on record. The census bureau's ginning report to Dec. 13 of 11,892,115 bales also indicates the largest cotton crop ever grown in the United States. The movement into sight up to Dec. 24 is estimated by the "Chronicle" as follows:

Year.	Bales.
1908, Dec. 24	8,139,374
1907, Dec. 26	6,348,158
1906, Dec. 28	7,740,632
1905, Dec. 29	6.895,550
1904, Dec. 30	7,801,153

The same authority estimates the world's visible supply on Dec. 24 at 5,238,127 bales, as compared with 4,705,720 bales at same date in 1907, 5,200,931 bales in 1906, and 5,314,437 bales in 1905. With a bumper crop coming on the market there is no probability of materially higher prices or of speculative manipulation for an advance. The last named contingency is rendered even less likely by the investigation of exchange methods by the Hughes Committee at New York. The managers of the New York Cotton Exchange will doubtless frown on any attempt to use the Exchange for gambling operations while it is under fire. For this reason, if for no other, the cotton market will be left to the influences resulting from legitimate supply and demand.

New York, Brooklyn. The Federal Knitting Co., Wythe Ave. and Rutledge St., which has been shut down since the death of Theo. S. Baron, its president and manager, will not be started up again. The plant has recently been appraised and will be put up for sale. They manufactured men's ribbed underwear of cotton, woolen and worsted yarns, operating 20 knitters and 100 sewing machines, selling the production direct.

New York, Oriskany Falls. The Oriskany Falls Knit Wear Co. has incorporated with capital stock of $20,000 to take over the Cunningham Woolen Mills. Officers have not been elected as yet. The Cunningham plant has two sets of cards, 10 spring needle and 9 latch needle knitting machines and 25 sewing machines.

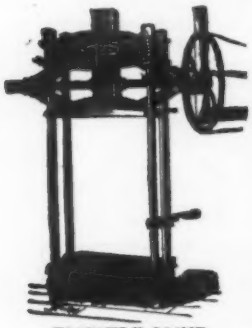
New York, Hamilton. The knitting mill at this place has been reorganized under the title of the Hamilton Hosiery Mills (Inc.) William E. Nugent is president, William E. Nugent, Jr., vice president and general manager, and F. E. Nugent is treasurer. The company has capital stock of $30,000. Children's underwear and hosiery are manufactured.

North Carolina, Walkertown. The Martin Mfg. Co. is interested in receiving information relative to hosiery knitting machinery and supplies for a new mill on half hose.

WEIMAR BROS. MANUFACTURERS OF Cotton Mercerized Tapes,

SPOOL TAPES, BINDINGS AND NARROW FABRICS FOR UNDERWEAR AND OTHER TRADES.

Phone Connections. Works, 2046-48 Amber Street, PHILADELPHIA, PA.



KNUCKLE JOINT.

BOOMER & BOSCHERT

BALING PRESSES

ARE THE STANDARD

Hydraulic or Knuckle Joint
Any Size .. Any Power

Boomer & Boschert Press Co.

338 West Water S., SYRACUSE, N. Y.
Southern Agent, A. H. WASHBURN, Charlotte, N. C.

HYDRAULIC.

OUR TRADE MARK

appears on every RAWHIDE LOOM PICKER which we make. It is stamped in the hide of the picker in a place where it will not be worn off or rubbed off and may always be seen regardless of how much the picker may be worn. This trade-mark on a rawhide loom picker stands for the best it is possible to produce in both hide quality and workmanship.

G TRADE MARK

GARLAND MFG. CO., SACO, MAINE
[Formerly Loom Picker Co., Biddeford, Maine]

LOOK!

THE BRANDEN RUBBER PUMP VALVE
Will Outlast Three Ordinary Valves.

Made for hot or cold water or any fluid where rubber valves are used. By its construction will outlast several ordinary valves. A trial will demonstrate the truth of our statements.

JOHNSTONE BLOW-OFF VALVE. A most durable and useful valve.

Pressure and Vacuum Gages. Pop Safety Valves.
Steam Engine Indicators. Whistles, Lubricators, Etc., Etc.

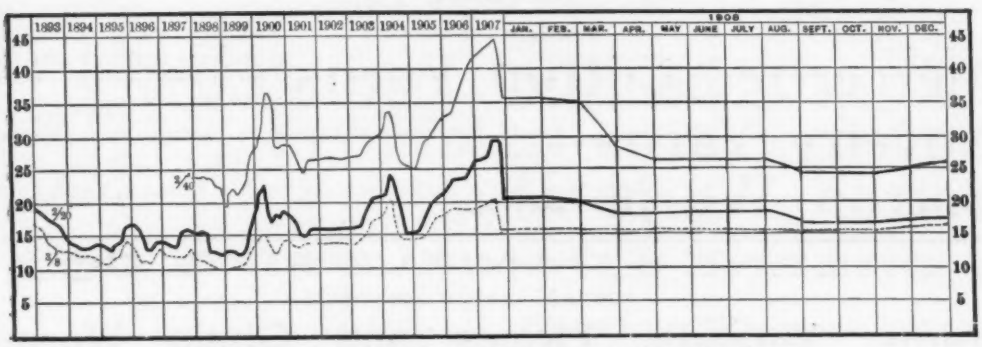
CROSBY STEAM APPLIANCES ARE UNEXCELLED.

CROSBY STEAM GAGE AND VALVE CO.,

Stores: Boston, New York, Chicago, London.

Office and Works: BOSTON, MASS,

Yarn Department.



GRAPHIC CHART SHOWING RANGE IN THE PRICE OF COTTON YARN TO DATE.

The Cotton Yarn Market.

The market on cotton yarn has been quiet during the past week or two. Prices reached their highest level around the end of November and since then there has been some recession in prices. The dullness in the market is probably due largely to the holiday season and to the natural tendency of buyers to use up all low priced yarn before entering the market at an advanced basis. Any improvement in the demand for yarn would stiffen prices and this improvement is confidently looked for early in the coming year.

We quote as follows:

Eastern Cops.

6s	17
8s	17
10s	17½
14s	18½
16s	19
18s	19½
20s	20
22s	20½
24s	21
26s	21½
30s	22
34s	23
36s	25
40s	26

On cones, ¾c. more up to 14s; 1c. more from 15s to 22s; 1 1½c. from 23s to 35s, and 2c. above that.

Eastern Two-Ply Skeins, Carded Peeler.

12s	20
14s	20½
18s	22
20s	23
24s	23½
26s	24
30s	25
36s	28
40s	29
45s	33
50s	36
55s	39
60s	44

Eastern Two-Ply Warps, Carded Peeler.

2/30s	25
2/36s	28
2/40s	29
2/45s	33
2/50s	36
2/60s	44

Egyptian Weaving Yarns.
Single Skeins Combed.

30s	35
36s	37
40s	38
45s	40
50s	45
55s	48
60s	52
70s	57

The Philadelphia Market.

7s and coarser	16
8s and 9s	16
10s	16½
12s	17
14s	17½
16s	18
18s	18½
20s	19
22s	19½
24s	20
26s	20½
30s	21½
40s	27
50s	35

THE J. R. MONTGOMERY CO.,

Windsor Locks, Conn.

MANUFACTURERS OF

Mercerized Cotton Yarns Gives the High Silk-Like Lustre in Knit Goods and Woven Fabrics.

Novelty Yarns Boucle, Bourette and Spirals, in Cotton, Wool, Worsted, Mohair and Silk.

Cotton Warps on Beams, Jack Spools and Tubes. In Fancy, Twist, Colors and Printed.

GREENE & DANIELS MFG. CO.,

COMBED, CARDED AND GASSED

Yarns, Threads, Twines and Chain Warps.

DYE SULPHUR BLACKS DIRECT IN COPS, CONES OR TUBES.

Colored and Bleached Yarns Furnished in any manner desired by the trade.

Pawtucket, R. I.

MONUMENT MILLS,

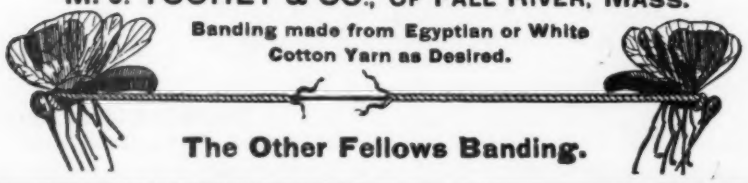
Manufacturers of
White, Colored, Fancy
and Double Twist

COTTON WARPS

HOUSATONIC, MASS. 4s to 60s.

M. J. TOOHEY & CO., OF FALL RIVER, MASS.

Banding made from Egyptian or White Cotton Yarn as Desired.



The Other Fellows Banding.

MARYLAND WOOL AND COTTON EXCHANGE
906-908 Streeper St., Baltimore, Md.

High Grade Hosiery and Weaving Yarns all colors.

Operating Well Equipped Bleachery, Dyehouse, Spool, Cone and Twist Mill.

EDDY & STREET,

Cotton, Woolen

Yarns and Braids

Worsted, Spun Silk.

PROVIDENCE, R. I.

The Merwin Paper Company

Hartford, Conn.

Press Papers and Fender Boards

Correspondence Solicited

Mills at Rainbow, Conn. Address Inquiries to Rainbow, Conn.

Southern high grade mule yarn:—

Cones.

10s	18½
12s	19
14s	19½
16s	20¼
18s	20¾
20s and 22s	21¼-21¾
24s	22¼

Southern frame yarn, lower grades:—

6s and 8s	15½
10s	16

Eastern cones (high grade quality):—

10s	19
12s	19½
14s	20
16s	20¾
18s	20¼
20s and 22s	21¾-22½

Skein yarn (mostly Southern):—

4s and 8s soft	15½
10s and 12s	16-16½
14s to 20s	17-18
22s	18½
10/2	16½
16/2	17½
20/2	19
30/2	21
40/2	27
16/3 slack	18
12/3 slack	17½
7/6 skein	16
8/3 carpet	15½
8/3 slack	16
9/4 slack	16

Warps (Southern):—

10s to 12s	17
14s	17½
16s	18
20s to 22s	18½-19
26s	19½
14/2	18
16/2	18½
20/2	19½
24/2	20½
30/2	21½
40/2	27

Mixed colored yarns (mock twist, half colors):—

6s to 10s	18-18½
12s to 14s	19-20
16s to 18s	20½-21

Mock Egyptian, 2c. advance over white.

Egyptian, 5 to 6c. above the best quality white.

C. MOORE & CO.,
Manufacturers of
TWINES, THREADS AND YARNS
Jacquard Harness Twines of all kinds on hand and made to order.
S. W. Cor. Fifth and Market Sts., Phila.

JAMES E. MITCHELL CO., COMMISSION MERCHANTS.
Cotton Yarns
AND COTTON CLOTHS.
122-124 Chestnut Street, PHILADELPHIA, PA.
73 Leonard Street, NEW YORK.
Brown Building, 185 Summer Street, BOSTON, MASS.
25 South Tryon Street, CHARLOTTE, N. C.

CATLIN & CO.,
Cotton Yarns.
345 Broadway, NEW YORK.
67 Chauncy Street, BOSTON.
128-130 Chestnut Street, PHILADELPHIA.
605 Medinah Temple, CHICAGO.

Harding, Whitman & Co.,
Dry Goods Commission Merchants,
COTTON AND WORSTED YARNS.
BOSTON. NEW YORK. PHILA.
CHICAGO. BALTIMORE. ST. LOUIS.

A. D. Salkeld & Bro.
COMMISSION MERCHANTS
DEP'T. FRED'K VIETOR & ACHELIS
COTTON YARNS
66-72 LEONARD STREET - - NEW YORK

Fred Sternberg & Co.
530 Broadway, - NEW YORK.
MERCERIZED TURKEY RED GASSED } COTTON YARNS.

LUDWIG LITTAUER,
SUCCESSOR TO
MOELLER & LITTAUER, 109 Greene St., New York
SILK, WORSTED, WOOLEN YARNS COTTON AND MOHAIR
Polished Threads and Tinsel. Artificial or Wood Silk.
Mercerized, Turkey Red, Fine Gassed Yarns.
SILK MILL, BOONVILLE, N. Y.

High Grade Hosiery Yarn
White and Colors. All Numbers. Sewing Twines on Cones and Tubes
SPECIALTIES IN WEAVING YARN
Black and White. Double and Twist for Woolen Trade.
CANNON MILLS 53-5 Worth Street, New York
Philadelphia Office, 205-7 Chestnut St.

GRANT YARN CO.,
COMBED AND CARDED COTTON.
YARNS 40's and above.
AND
FITCHBURG, MASS. WARPS

S. T. Crocker, Pres. W. F. Stiles, Treas.

ORSWELL MILLS

Fitchburg, Mass.

Capacity, 45,000 Spindles.

HIGH GRADE YARNS

From Egyptian and Peeler Cottons, Carded or Combed, in Chains and Skeins, on Balls, Beams, Spools, Cops, Cones, Tubes, Single or Twisted.

Cotton Yarns

Jenckes Spinning Company
Pawtucket, R. I.

Carded and Combed single and twisted Yarns and Threads from Peeler, Sea Island and Egyptian Cottons, on Cops, Cones and Tubes or in Skeins and Warps. Six Cord Thread Yarns a Specialty **Bleached or in colors**

We are successfully dyeing cotton yarns on parallel tubes and cops and would be pleased to send a sample to interested parties.

Dyeing, Coneing, Twisting and Tubeing of Cotton, Woolen and Worsted Yarns.
Dyers of Cotton Warps, and Hosiery in Fast Black and Colors.

Cross-Dye Colors a Specialty.
Yarns Furnished on Dresser Spools.
Dealers in All Kinds of Yarn for the Trade.

Germania Dye Works
MAX SARFERT, Prop,
Kensington & Allegheny Aves., Philadelphia.

Ballou Yarn Co.

PROVIDENCE. R. I.

Harness and Seine Twines and other Job Gassing, Winding, etc. All Numbers

GASSED YARN SPECIALTIES

T. H. S. CONE, Direct Selling Agent
COTTON YARNS
77 Worth Street, New York, N. Y.
Representing
Norwood Mfg. Co., Norwood, N. C.
Linn Mills Co., Landis, N. C.

Century Cotton Mills

Manufacturers of

Hosiery Yarns

Nos. 10s to 30s Sell Direct

South Boston - - - Virginia

Beacon Narrow Fabric Co.

Braids & Tapes

Notre Dame St. FALL RIVER, MASS.

Authorized Capital $100,000
W. A. Dickel, Pres. and Treas.
Samuel Reid, Vice-Pres. and Sec'y.
I. B. Scovill Gen'l Mgr. and Supt.

INDUSTRIAL MILLS CO.
Jasper and Huntingdon Sts., Phila., Pa.
Manufacturers of
NARROW FABRICS
Special Attention Paid to Plain and Fancy
Spool Tapes and Stay Bindings.

F. W. MAURER & SONS CO.
MANUFACTURERS OF
Fringes, Tapes, Bindings, & Narrow Fabrics
Office and Factory: WAYNE AVE. and BRISTOL STS.
PHILADELPHIA

KROUT & FITE MANUFACTURING CO.,

Manufacturers of

Silk, Cotton and Mercerized Narrow Fabrics

SPOOL TAPES A SPECIALTY.

Telephone Connection. Office and Mill, Allegheny Ave. and Emerald St., PHILADELPHIA.

Pennsylvania, Bethlehem. M. S. Weaver's West End Hosiery Mills are very busy on children's ribbed cotton hosiery and report that they have been compelled to refuse orders for future business. Twenty-two knitting machines, 27 ribbers, and 6 loopers are operated, using 15s, 20s and 40s cotton yarn on cones, which is bought.

Pennsylvania, Bethlehem. The Philadelphia Hosiery Co., Inc., reports that they have more orders on hand than they have had for several months. The mill is running to full capacity. Chas. F. Hendricks is president, Samuel Graham is treasurer and buyer and Cornelius King is superintendent. The company has capital stock of $10,000 and manufactures misses' cotton ribbed hose on 81 knitters.

Pennsylvania, Coplay. The Coplay Knitting Mill Co., which has been running part time since last spring, are now arranging to start their plant up on full time commencing Jan. 1. They are manufacturers of women's ribbed underwear, which they sell direct and through New York.

Pennsylvania, Lecsport. The Eagle Knitting Mills Co., Ltd., will be operated in the future under the name of the Eagle Knitting Mills Co. The plant is being operated under the personal supervision of William D. Burkey, secretary and treasurer, and Roscoe C. G. Bowman, superintendent. They manufacture ladies' cotton underwear and are very busy, having orders enough booked to run them until March next.

Pennsylvania, Scranton. The Standard Knitting Works, formerly known as the Scranton Hand Knit Works, have removed their plant to larger quarters at 1538-42 Dickson Ave., where, under the management of the proprietor, Adolph Haefner, they are very busy operating 20 hand knitters, 12 power knitters, 3 ribbers, 84 loopers on men's and women's cotton, woolen and merino hose and half hose, which is sold direct. They buy 10 to 40 cotton, 12 to 18 merino, and 12/2, 14/2, 18/2 worsted yarn.

Pennsylvania, Shoemakersville. The Globe Knitting Mills, manufacturers of misses' and ladies' ribbed underwear, have been exceedingly successful in finding a steady demand for their product and have been running right along, full time, throughout the year. The plant is run under the management of D. S. Wolfe.

Chas. W. Severson, formerly president of the Oswego Knitting Company, Oswego, N. Y., but more recently employed by the Hatch & Campbell Knit Goods Company of New York, committed suicide in the Milwaukee Hotel. He was 42 years of age.

In some drives only the best belts can meet the conditions.

Rhoads Leather Belting

stands up to such work and gives full measure of value in service.

J. E. RHOADS & SONS

PHILADELPHIA: 12 N. Third St. NEW YORK: 40 Fulton St.
BOSTON: Hamblet & Hayes Co., Eastern Agents, 105-111 Summer St.
Factory and Tannery, WILMINGTON, DEL.

LINEN YARN IMPORTER.

HUGHES FAWCETT, 115 Franklin Street, NEW YORK.

Flax, Hemp and Jute Line and Tow Yarns, For Weaving Purposes.
Linen Jacquard Harness Twines, Fine Cotton Harness and Heddle Twines.
For Cotton, Silk, Woolen and Carpet Manufacturers.
Correspondence solicited. Samples promptly furnished.

DUNCAN & YOUNGS

95 Worth Street, NEW YORK
Practical Manufacturers of
YARNS, THREADS, TWINES, CORDS, ROPE
AND MILL SUPPLIES
Anything in the line you cannot get anywhere else apply to us.

William B. Charles,

Amsterdam, N. Y.
Cotton Yarns, Cotton Cloth, Silesia, Sateens,
For the Underwear Trade.

F. C. BARTON

65 Worth Street, New York
MANUFACTURERS OF
"LILY" BRAND NARROW FABRICS
WEB, TAPE, BINDINGS, ETC.

THE BIAS NARROW FABRIC CO.

F. C. BARTON, President
65 Worth Street, New York
Bias and Straight Cut Fabrics and Ribbons.
Embossing and Cutting Customers Own Goods a Specialty.

Pocasset Worsted Company,

Worsted Yarns.

BOSTON
100 BOYLSTON STREET
TELEPHONE 19 OXFORD

NEW YORK
100 FIFTH AVENUE
TELEPHONE CONNECTION

H. HODGSON, Pres. & Treas. FRED HODGSON, Gen. Mgr.

QUEENSBURY MILLS

Mohair, Lustre and Worsted Yarns

—Single and Two Ply—

Grey—Colors on Mixtures Worcester, Mass.

French System. **B. F. BOYER CO.,** Bradford System.

MANUFACTURERS OF

WORSTED AND WOOLEN YARNS,

Office and Mill, River Ave. and Marlton St. CAMDEN, N. J.

WORSTED YARNS

RICHARD CAMPION.

SELLING AGENT FOR

Bristol Worsted Mills,
Highland Worsted Mills.

300 Chestnut Street,
PHILADELPHIA, PA.

Woolen and Merino
YARNS
Eaton Rapids Woolen Mills,
EATON RAPIDS, MICH.

Worsted AND Woolen **Yarns**

WALTER McCOOK

BELL TELEPHONE LOMBARD 3790 576 Bourse Philadelphia

MILLER MANUFACTURING COMPANY

Manufacturers of

SOAPS for Textile Use, SIZINGS, OILS, Etc.

Write us for Prices.

668 EDDY STREET, PROVIDENCE, R. I.

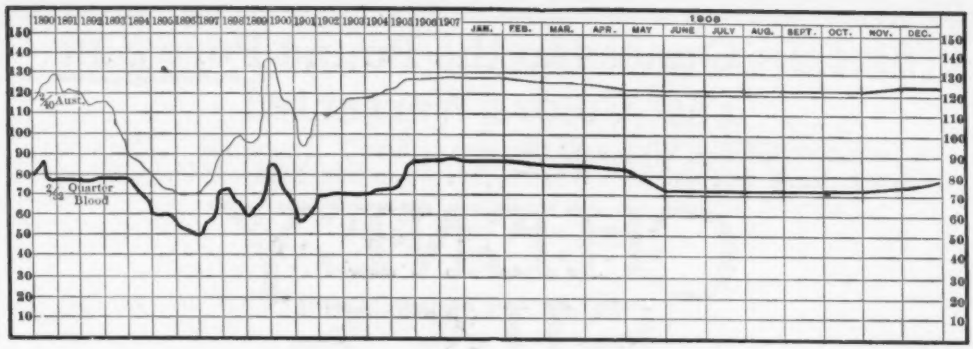


CHART SHOWING RANGES OF PRICE OF WORSTED YARNS.

Woolen and Worsted Yarn Market.

The spinners of worsted yarns, both Bradford and French spun, are, in almost all instances, busily engaged in delivering yarns, orders for which were placed within the past few months, and report that they will have as much as they can do to fill orders up to March next. Manufacturers are eager to secure yarns and, in many cases, are willing to take double the quantity the spinner can deliver. Spinners report that they cannot fill orders fast enough or deliver enough yarns to go around. The demand is mostly for 2/70 to 2/30 and in singles from 22s to 50s. The call for fine numbers is very great and there is a tendency among the spinners to hold the prices up. From 2/50 to 2/70s have gone up 15 cents per pound, from the bottom, and 40s have advanced from 12 1/2 to 13 cents a pound, other qualities and counts in proportion. There is every indication of a further advance being made, the spinner making the claim that the price of raw material is against him and he will have to protect himself by increasing the price of his yarn. This statement, however, in some quarters is considered erroneous when it is taken into consideration that yarns are away up above the price of wool. In coarser numbers and qualities the demand is not near so great as it should be and unless the men's wear business opens up very strong, it is said that these yarns will have to be reduced in price in an effort to stimulate the demand.

In the men's wear market everybody is just hanging back and waiting to see what the larger mills are going to do in the way of prices and fabrics. There is no doubt but that there will be a very good volume of business coming forward early in the new year.

The dress goods manufacturers are between seasons, and, with the exception of sample orders, there is very little doing. It is expected that early in the new year there will be a very large volume of business placed on cloths made of very fine yarns.

Rain cloth yarns, it is said, are practically done for and very few sales are reported for this grade of yarn.

The fancy knit goods and sweater trade is still actively employed in getting out goods and report that for next season they expect even a larger business than they have had this year, which has been the largest in the history of the trade.

In spite of the advance in the price of yarns and a further increase being considered, it is said that the manufacturers are willing to face the situation and pay more money as an inducement to spinners to make deliveries in an effort to turn out goods and fill orders.

BRADFORD SPUN YARN.

2/12 to 2/16 low common	62½-67½
2/26 to 2/28 common	67½-70
2/12 to 2/20 1/4 blood	75-77½
2/26 to 2/28 1/4 blood	77½-80
2/32 to 1/4 blood	80-82½
2/20 3/8 blood	85-87½
2/26 3/8 blood	87½-90
2/30 3/8 blood	90-92½
2/36 3/8 blood	92½-95
2/40 1/2 blood	1.07½-1.10
2/40 delaine	1.12-1.15
2/50 delaine	1.17½-1.22½
2/40 Australian	1.22½-1.25
2/50 Australian	1.35
2/60 Australian	1.50
2/24 lustre	85
2/28 lustre	87½
2/30 and 3/32 lustre	90-92½
2/36 lustre	97½-1.00
1/24 worsted and 80s single cotton for raincloths	1.00
1/24 worsted and 120 single cotton for raincloths	1.10

FRENCH SPUN YARN.

1/20 1/4 blood	77½-80
1/20 high 1/4	82½-85
1/20 3/8 blood	92½-95

Sixteen Ounces to the Pound Pure Silk
Fast Colors Warranted

A pound of Cheney Silk *means* "sixteen ounces" of *pure silk*. That's the Cheney standard of weight. Whether it's Spun Silk Yarns or Dress Goods

CHENEY SILKS

maintain that standard. Moreover, Fast Colors are *Guaranteed*—a feature of vital importance.

CHENEY SPUN SILK YARNS

are made in the Gray or Dyed; on Spools or Cones, Warped or in the Hank. Organzines, Trams and Singles—full weight—fast colors. Special Yarns made to order for all sorts of Silks or Silk Mixture Goods. Manufacturers' orders promptly executed. Also makers of

Dress Silks, Satins, Gros-Grains, Shower-Proof Foulards, Pongees, Millinery Silks, Upholstery Goods, Ribbons, Sashes, Plushes, Velvets, etc., etc.

CHENEY BROS., *Silk Manufacturers*
South Manchester, Conn.

Salesrooms:
NEW YORK, 477 Broome St. BOSTON, 79 Chauncy St.
CHICAGO, Heyworth Building PHILADELPHIA, 929 Chestnut St.
SAN FRANCISCO, Chronicle Building

WILLIAM RYLE & CO.,

Foreign and Domestic

Spun Silk Yarns and Noils.

Domestic Thrown Silk of every description. Fine Pure Dye Silks for the woolen trade a specialty. Importers of European and Asiatic Raw Silk.

54 Howard St., cor. Mercer St., NEW YORK.

SAUQUOIT SILK MFG. CO.,

INSULATING AND BRAIDING SILKS.

ORGANZINE, TRAM & HOSIERY SILKS.

Fast Dye Organzines for Woolen Manufacturers a Specialty.

Mills: Bethlehem, Pa., Phila., Pa., Scranton, Pa. New York Representatives, Wm. Ryle & Co., 54 Howard St.—Phila. Office, 4015 Clarissa St., Nicetown.—Chicago Office, 188-190 Market St.—Boston Office, 78 Chauncy St.

GEORGE W. CHAPIN,

BRAIDS Cotton, Worsted, Mercerized, Cotton and Silk Twilled. **TAPES** Common, Twilled, Superfine and Plain 13 to 35s, white and colors on spools.

YARNS Cops, Skeins, Warps, Tubes and Cones. **THREADS** on Spools, Tubes, Cones, Unbleached Bleached and Colors for Manufacturers' use.

CROCHET LACE EDGINGS Latest Styles in Pant Laces.

229 Church Street 231 . . PHILADELPHIA

1/20 1/2 blood	95-97
1/20 3/8 blood	87½-90
1/30 high 1/4 blood	85-87½
1/30 3/8 blood	87½-90
1/30 1/2 blood	97½-1.00
1/40 1/2 blood	1.02½-1.05
1/50 delaine	1.20
1/40 Australian	1.25
1/50 Australian	1.30
1/60 Australian	1.40
1/70 Australian	1.45

The Rag and Shoddy Market.

Business in rags and shoddy has fallen off sharply and lower prices have been quoted on many grades. These concessions, however, have failed to bring orders and the new year begins unfavorably for this branch of the textile business. Dealers refuse to admit that the setback is more than temporary and profess to believe that business will revive despite the uncertainties that surround the trade during a general revision of the tariff. It is, nevertheless, difficult to understand how the rag and shoddy market can become active before there is a radical change in the character of the demand for goods. That demand still runs largely to cloths with a finish that can be obtained only with worsted or cotton yarn. No change in the tariff can create a demand for material that will not give the popular finish.

SHODDIES AND EXTRACTS.

White yarn, best all wool	42-48
White knit, all wool, best fine	35-40
White knit, No. 2	30-36
Light yarn, extra fine	31½-33
New pure indigo blue	28-30

Merino.

Fine light, all wool	26½-27
Medium light, all wool	17-19½
Fine black, all wool	25-30
Fine dark, all wool, best grade	20-22
Medium dark, all wool, No. 2	14-17
Red knit stock, strictly all wool	20-22
Red flannel, all wool	
Dark blue for hosiery, strictly all wool, No. 1	19-20
Dark blue for hosiery, not all wool, No. 2	16-18

WOOLEN RAGS.

Fine merchant tailors	10-12½
Choice light colors	16-18
Browns	11½-14½
Blacks	10-13½
Fine blues, plain	11-12½
Fine dark	9½-13
Medium dark	6½-10½

Worsteds.

Blue	14½-17
Black	19½-20

Knitting and Weaving YARNS.

Cones, Cops, Warps, Skeins,
Single, Double, Three-Ply, etc.
Peeler, Egyptian, Mixed Colors.
Large Assortment.

EDWARD S. HYDE,
226 CHESTNUT STREET,
Philadelphia, Pa.

EDWIN F. SCHOFIELD
Cotton Waste
IMPORT and EXPORT
45 S. 3rd St. Philadelphia

William B. Charles,
Amsterdam, N. Y., U. S. A.
Cotton and Wool Wastes
COTTON YARNS
Contracts made with Cotton and Woolen Mills for Yearly Waste Production. Correspondence solicited. Shepperson's Code, 1878. Cable Address "Charles."

C. M. BLAISDELL, Pres. and Treas. G. A. BLAISDELL, Vice-Pres. and Sec'y.
Established 1860—Incorporated 1893.
THE S. BLAISDELL, JR., CO.,
COTTON, EGYPTIAN PERUVIAN
American Long Staple a Specialty. Shipments direct to mill from Egypt, Peru and all American Southern Points.
CHICOPEE, MASS.
Cotton Waste Purchased on Yearly Contract from Mills.

Testing of Yarns.
Count-Twist-Strength-Moisture-Chemical Test
When in doubt apply to
NEW YORK SILK CONDITIONING WORKS
138-140-142 Spring St., New York

Serges.

Black	10-12
Blue	11-13

Flannels.

New scarlet	18-20
New blue	16½-19
Cloakings	4½-6½

SOFTS AND KNIT STOCK.

Soft woolens, best	5-5½
Old white flannels	12-13
Old red flannels	12-12½
Old blue flannels	5½-6½
Old plaids	7-9
White stockings	19½-22
White hood stock	20-23
Clear hoods	9-11½

Dyestuffs and Chemicals.

Acids.

Acetic, 100 lbs.	2.60-3.00
Citric, domestic	50-52
Oxalic	8-9
Sulphuric, 66°, 100 lbs.	1.25-1.80
Muriatic, 18°	1.10-1.80
Tartaric crystals	2.65-3.00

Miscellaneous Chemicals and Dyestuffs.

Acetate of lime, gray, 100 lbs.	2.50-2.90
Alum, lump	1.73-2.49
ground	1.82-2.25
powdered	2.81-3.34
Aqua ammonia, 26°	
Ammoniac, sal., gray	
Borax, bbls.	4-7½
Brimstone, crude, ton	27-51
Copperas	60-80
Cream tartar, crystals	20-25
Fuller's earth, powdered, ton	19-20
Glauber's salt	51-65
Potash, chlorate, crystals	11-12
powdered	12-13
carbonate	6-7
Soda, bicarbonate	1.60½-1.76
Soda, caustic, domestic, 60 per cent.	1.72-1.91
Sal., American	72-86
Vitriol, blue	5-6
Acetate of soda	4-6½
Acid, picric, best crystals	25-50
tannic, commercial	30-40
Albumen, egg	61-72
blood	24-32
Alizarine, red	18
Aniline, oil	11-12
salt crystals	13
Bichromate of potash, American	9-11
Bichromate of soda	8½-9½
Bisulphite of soda	3-4
Cutch, mat	5-7½
Dextrine, imported potato	6-10½
Divi-divi, ton	46-68

Wisconsin, Milwaukee. The capital stock of the Columbia Knitting & Mfg. Co. has been increased from $25,000 to $100,000 for the purpose of enlarging the business.

TRADE MARK REGISTERED IN
NON-FLUID OILS
UNITED STATES PATENT OFFICE

Don't Eat Green Apples Twice.

When ordinary thin oil has leaked out of a bearing, mussed up machines and the floor, ruined several belts and perhaps stained your product, don't deluge your machines with the same old stuff. Oil will do if you don't mind letting 85% go to waste, and don't mind humoring the bearings.

Greases are not much better. They change from solid to liquid at one jump, and run OUT as quick as IN the bearings.

NON-FLUID OILS make pure profit from the waste of others, to say nothing of their cleanliness. They lubricate the rubbing surfaces, NOTHING ELSE.

Send for free sample.

ORIGINATORS AND SOLE MANUFACTURERS

N. Y. & N. J. Lubricant Company
Dept. H. 14-16 Church St., New York

You Save Enough Insurance to Pay for the Equipment.

So it costs you NOTHING to have the AMERICAN WATCHMAN'S CLOCK. Fully approved by all insurance companies. We equip factories with Fire Alarms, Signals, etc., also Employee's Time Recorders, and Telephone Systems. Electric Time System consists of Master Regulator in office with secondary electric clocks throughout the mill, insuring accurate time. Send for particulars.

Pettes & Randall Co., 150 Nassau St., New York

Established 1796

Special Shaped Carbon Black Diamond. Points for Tiering Rag and Corn Husk, Cotton. Calender Rolls, Hard Rubber Fibre, etc. Manufactured by

Thos. L. Dickinson Successor to John Dickinson, 64 Nassau St. New York City.

Small Washing Machine

The cut shows our Metal Shell Power Washer, made in several sizes from 24″x 24″ upwards. Having a metal shell, it is more durable and sanitary than a wood shell machine and is by far the most economical in the end. We make wood shell machines also, and ironing machines, drying rooms, etc. Write for prices

STEEL ROLL MACHINE CO.
254 B. Madison St., Chicago, Illinois

FIRE, LIGHTNING, WINDSTORM.

The HOME INSURANCE COMPANY NEW YORK

Organized 1853. MAIN OFFICES, 56 CEDAR ST.

Cash Capital, $3,000,000.

ASSETS January 1st, 1908	$20,862,698
LIABILITIES (Including Capital)	13,659,487
RESERVE AS A CONFLAGRATION SURPLUS	500,000
NET SURPLUS OVER ALL LIABILITIES AND RESERVES	6,703,211
Surplus as Regards Policy-holders	10,203,211
Losses Paid Since Organization Over	110,000,000

Note amount of surplus after providing for San Francisco and other conflagrations.

HOME Policyholders everywhere have protection, which is sure, notwithstanding conflagrations anywhere.

IS prepared to entertain liberal lines on Sprinkler-Equipped and Modern Improved risks generally, having a special department for the consideration of such business.

ELBRIDGE G. SNOW, President.

EMANNEL H. A. CORREA, Vice-Pres.
FREDERICK C. BUSWELL, Vice-Pres.
CLARENCE A. LUDLUM, Asst. Sec'y.
AREUNAH M. BURTIS, Secretary.
CHARLES L. TYNER, Secretary.
HENRY J. FERRIS, Asst. Secretary.

Enlargements and Improvements.

*Massachusetts, Indian Orchard. Six art square looms will be added to the equipment of the Hodges Fiber Carpet Co.

Massachusetts, Westboro. The equipment of Joseph S. Mason's narrow fabric plant will shortly be increased from 39 looms to 45 looms. Narrow fabrics, tapes, etc., are manufactured. Joseph S. Mason is proprietor and buyer.

*New York, Cohoes. Clute Bros., Inc., are operating six garnett machines and 16 cards on cotton batting and expect to increase this equipment shortly. A. J. Clute is president, V. S. Clute is treasurer, and Hayes W. Walker is superintendent and buyer. A bleach house is operated in connection with the plant. They are interested in new carding machinery, openers and lappers, and supplies.

Pennsylvania, Norristown. The new machine works of the Wilcomb Machine Co. is about completed. They are finishing the interior and installing machinery and expect to be in operation in the new building about January 1.

Pennsylvania, Philadelphia. The hosiery band and label printing department, formerly operated by John Bray in conjunction with his business of printing hosiery, has recently been purchased by Messrs. Splane & Armstrong, who will conduct the business, in the future, under this name. Mr. Bray has removed his hosiery printing business to Germantown. Messrs. Splane and Armstrong will continue their operations at Collins and Westmoreland Sts., as heretofore, and desire to notify the trade of this fact.

New Mills.

*Indiana, New Albany. The fire at the Hoosier Dye Works and Manufacturing Co. was in the dye house. They are rebuilding and expect to be running full in about two weeks. The fire did not damage the mill proper. They are interested in new equipment for their mill and supplies, as they expect in the near future to make extensive improvements.

Pennsylvania, Columbia. Another story will be built on the bleachery of the Columbia Lace Company.

Pennsylvania, Hazelton. A. J. Kummerer & Son's Hazelton Bleachery is very busy bleaching knit and cotton goods in the piece. In addition to doing work for the underwear mills in this city they report business coming in from all over the state and advise that it is their intention to equip the plant for bleaching cotton yarns in the near future.

Pennsylvania, Philadelphia. Under the name of the Paragon Dye Works, M. M. Reinhard, formerly with the Standard Hosiery Dyeing & Finishing Works of this city, and John J. Mealy, are equipping a new 1-story brick building, 60 by 80 ft., at Clearfield and Witty Sts., for dyeing, printing and finishing hosiery, with a capacity of 5,000 pounds per day. The machinery for the plant is now being installed and the proprietors expect to have it in operation within a few days. They will dye hosiery in fast blacks and colors. Mr. Reinhard will be superintendent.

The WM. H. LORIMER'S SONS CO.,

Manufacturers of

MERCERIZED YARNS

FOR ALL PURPOSES.

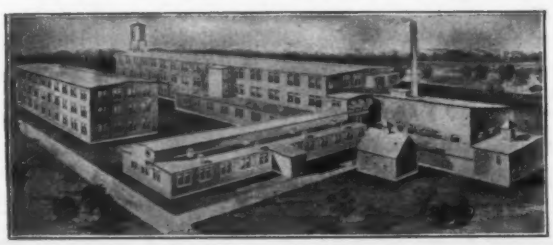
MERCERIZERS AND DYERS.

New York Office:
Room 911 New York Life Building,
346 Broadway.

Ontario and Lawrence Sts.,
PHILADELPHIA, PA.

PETER B. MCMANUS, Pres. and Treas. EDWARD J. MCCAUGHEY, Secy. and Mgr. JOHN MCMANUS, Vice-Pres.

HOME BLEACH AND DYE WORKS, Inc.



Dyers, Bleachers and Mercerizers of

Cotton Yarns

in skein, and long and short

CHAIN WARPS

Fast Colors a Specialty.

Daily Capacity 30,000 lbs.

Fast Colors and Black for Worsted Trade.

Office and Works, Pawtucket, R. I.

Established 1881.

GLOBE DYE WORKS CO., Successors to R. Greenwood & Bault

DYERS BLEACHERS AND **MERCERIZERS**

OF COTTON WARPS AND SKEIN YARNS

Globe Bleach and Dye Works,
Oxford and Worth Sts., Frankford, Pa.

140 Chestnut St., PHILADELPHIA.

YARNS BLEACHED AND DYED (delivered on cones)

BLEACHING and DYEING

ESPECIALLY FOR THE

KNIT GOODS TRADE

CONE WINDING FOR THE TRADE

Schuylkill Haven Bleach and Dye Works, SAMUEL ROWLAND, **Schuylkill Haven, Pa.**

N. B. Bleached Finishing Yarns on Cones for Underwear, always in Stock.

JOHN F. DAVIDSON, Orianna Bleach Works

BLEACHERS

Of Turkish Towels, Cotton Yarns, Underwear and Tapes

Turkish Towels Made Up to Suit the Trade and Shipped to Any Point

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Office, 2557 Orianna Street

Correspondence Solicited

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The remarkable German finish for cotton, wool and worsted cloths

is the Simplest and Cheapest means for giving Goods Fullness, Body and Weight.

is guaranteed harmless to fibre and color, does not coat the yarn, but closely unites with it, eliminates dusting off during the napping process. Does not change goods while in stock.

Write for price and particulars

The New Brunswick Chemical Co.

New Brunswick, N. J.

All business transactions treated confidentially.

FIRTH & FOSTER CO.

Dyers and Finishers

York, Emerald and Adams Sts., Philadelphia, Pa.

New York Office, Silk Exchange Bldg., Cor. Broadway and Broome Sts.

Dyeing and Finishing of Piece Goods Exclusively, such as Wool Armures, Prunellas, Satins and Henriettas. Panamas, Poplins, Serges and Cheviots. Mohairs, Bradford Finish, in Fancy and Solid Colorings. Also Suitings and Cloakings.
Specialty in the Treating of Silk and Wool Fabrics, such as Eolliennes, Crepes and Henriettas and all high class wool tissues like Batiste, Voiles and Foules. Also, Cotton and Wool Goods, Mohair Linings and Lastings.

SPECIAL ATTENTION IS GIVEN TO THE REDYEING OF ABOVE

UTICA WILLOWVALE BLEACHING CO.

Sheetings, Shirtings, Lawns, India Linons. Everything in White Goods.

John MacManus, Superintendent.

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The Western Thread and Dye Works

COTTON AND MERCERIZED DYEING AND BLEACHING
CONE AND TUBE WINDING

21st Street and Marshall Boulevard, **CHICAGO**

Pawtucket Dyeing and Bleaching Co. Bleachers and Dyers of COTTON YARNS and STOCKINET

Office with Blodgett & Orswell Co., Manufacturers of Glazed Yarns.

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Cleans Wool, Floors, Anything.

INDIA ALKALI WORKS, Boston.

THE PEERLESS COMPANY,
Willard and Jasper Sts., Philadelphia.

Dyers of Skein Silk
FOR ALL TEXTILE PURPOSES

Fast Colors on Silk for Worsted Manufacturers.
Pure Dye and Weighted. Bright and Souple.
Dyers of Peerless Black on Artificial Silk.

Duxbury's English Calender Roll Papers

FOR EMBOSSING AND OTHER CALENDERS.

CHAS. A. JOHNSON & CO. Sole Agents for America

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51 AND 53 FRANKLIN STREET, NEW YORK

PAPER AND TWINE MERCHANTS

FOR FINISHERS OF TEXTILE FABRICS
"ROYAL" PRESS PAPERS

THE SOLWAY DYEING & TEXTILE CO.,
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Dyers, Bleachers and Mercerizers

of Cotton Yarns in Long or Short Chain Warps and Skein in FAST COLORS, for all purposes.

Also Dyers of Genuine Turkey Reds.

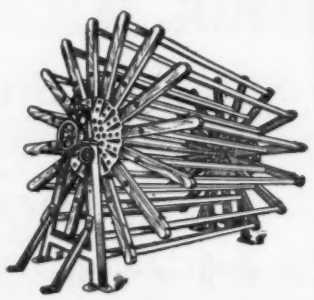
We are Dyers of all kinds of YARNS AND Cotton Warps

We are sure we can give you better work and better service than you can get elsewhere. A trial will convince.

T. BROPHY'S SONS, Jasper St., above Clearfield St., - PHILADELPHIA, PA.

Leaves yarn in beautiful condition— Bailey's Cold Air Drying System

Yarn dried by this system is much softer, winds and weaves better, shows less percentage of waste and the colors develop better. In use in over two hundred mills. Simple, effective, inexpensive. Investigate its merits for your profits sake. Where great capacity is wanted my *hot air system* is unequalled.



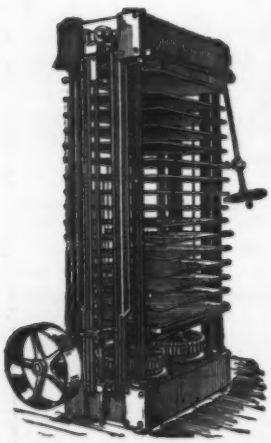
Dye Sticks, Dry Poles, Fans, Trucks for Yarn Dryers and Dye Houses.

FRANK BAILEY, Manufacturer, Works at Braddock.
P. O. Ad., Cedar Brook, Camden Co., N. J.

ARABOL MANUFACTURING COMPANY,
100 William Street, New York.

Sizing, Stiffening, Softening and Finishing Compounds, Glues, Gums, Dextrines, Starches, China Clay, Bone Size and Grease, Soap, Tallow, Weighteners,

EVERYTHING IN SIZINGS, Etc. SAMPLES MATCHED. HIGH GRADE GOODS.



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For Hosiery and Underwear Trade.

For price and particulars address

CHARLES HART
Hedge and Brown Sts.,
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DYE STICKS

Drying and Sulphur House Poles of Natural Round Water Grown Cedar for Cotton, Wool, etc. Special Hardwoods in Standard No. 1 and "Selects" without knots, grades, for Silk Dyeing. Manufactured by, prices and all information from

E. M. HAEDRICH,
601 Mariner and Merchant Bldg., ... Philadelphia.

COPPER Printing Rollers Singe Plates and Sheets

Taunton-New Bedford Copper Co.
New Bedford, Mass.

Our Guarantee:
Superior Quality. *Prompt Shipments.*

A. KLIPSTEIN & CO.

Dyestuffs and Chemicals

Fast Colors for Wool and Cotton.
Full Line of Direct Cotton Colors.

THIOPHENOL BLACK T EXTRA and 2 B EXTRA.
PYROGEN BLUE R . . .
PYROGEN INDIGO. . . . .

Direct Sulphur Colors, Faster than Indigo, to light and Washing.

Chrome Fast Blacks, Blues, Browns and Yellows.
Acid Benzyl Blue, Violet Green and Black.

Headquarters for Caustic Potash 90%, Carbonate of Potash. Chlorate of Potash and Soda. Tannic Acid. Bleaching Powder.

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SOLE AGENTS FOR

The Society of Chemical Industry, Basle, Switzerland.

THIOGENE COLORS

Sulphur Colors for cotton dyeing.

MONOCHROME COLORS

Fast one-dip mordant dyes.

RESIST COLORS

All shades

H. A. Metz & Co.,

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CONCENTRATED FLAVINE

In these days of the competition of inferiority and adulteration it is well to do business with this firm, who adhere to the standards set by them years ago.

PURITY, STRENGTH AND UNIFORMITY GUARANTEED

J. S. YOUNG & COMPANY LIMITED

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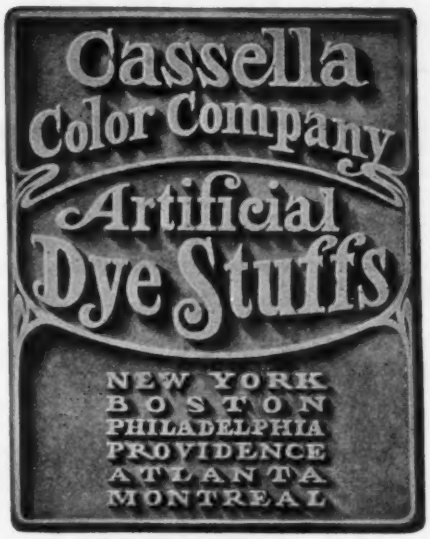

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animal + vegetable fibres or their mixtures is the best.

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SPECIALTIES
Sulphur Blacks, Sulphur Blues, Sulphur Browns, Sulphur Greens, Sulphur Yellows, Indocyanines, Nerols
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Manufacturers and Importers of
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Selling Agents for
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Manufactured by
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of every shade and description, absolutely fast to sunlight, fulling, acids, etc.

Domingo Alizarine and Domingo Chrome Colors for Wool,

dyeing either after the one bath method absolutely fast, or on chrome bottom.

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SULPHUR BLACKS, BLUES, BROWNS

CHEMICALS.

AUTOGENE BLACK BEE

Manufactured by

The St. Denis Dyestuff and Chemical Company, Ltd., PARIS, FRANCE

Originators of the Sulphur Color Industry

AS REGARDS SHADE, DURABILITY AND COST OF DYEING, THE BEST SULPHUR BLACK EVER PRODUCED

SAMPLES AND FULL PARTICULARS FROM

Walter F. Sykes & Co., Sole U. S. Agents

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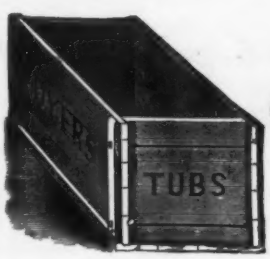
All sizes all shapes.

Built to Last

LARGE TANK WORK A SPECIALTY

Send for catalog. Established 1849.

The A. T. Stearns Lumber Co., Boston



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Manufacturers of

Cedar Vats and Tanks

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Tubs and Tanks of all kinds for Dyers, Bleachers, Factories, etc.

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Hours from 12 to 1

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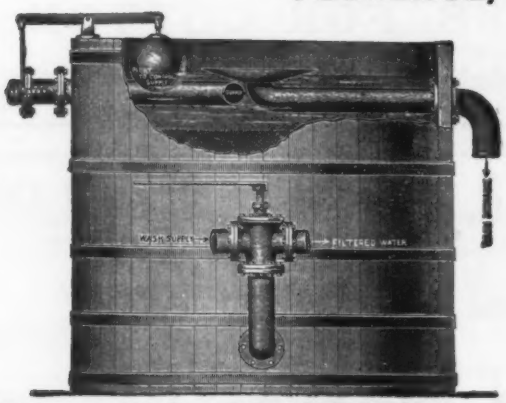

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Hungerford Filters having a daily aggregate capacity of over thirty million gallons per day are now in operation in the textile mills of America.

Estimates and plans for proposed installations submitted without cost.

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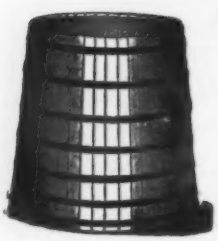

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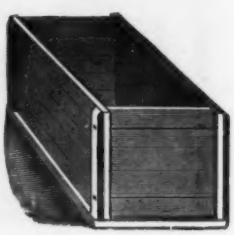
For Bleaching, Dyeing and Finishing.

Reservoir Tanks of any Capacity or Shape for Sprinkler Systems and all purposes.



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B. & L. ANTI-CHLORINE (ultra bleaching process)
OLO SOFFENE (superior cotton softener)
CELLULINE—For cotton warps
SIZING AND FINISHING COMPOUNDS

Works and Main Office, ATLANTIC, MASS. (Suburb of Boston.)

The Jamaica Dyewood and Chemical Co

"RIO DE ORO" Brand Logwood Extract

Headquarters for Logwood—Crystals, Hermatine Paste
Fustic Crystals, Fustic Paste, Quebracho, Sumac

No. 50 Church Street - - - New York
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CHARLES H. SCHNITZLER,
Patentee and Sole Manufacturer of
THE PNEUMATIC CONVEYOR

For the handling of wool and cotton stock rags, excelsior, jute and all kinds of fibrous material, wet or dry. Also spool elevators, steam heating and ventilating, and mill work generally. Blower and fan work a specialty. This conveyor is patented. Beware of infringement.

SATISFACTION GUARANTEED Patented Oct. 15, 1889.
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THE CYPRESS LUMBER CO.

MANUFACTURERS OF

TANKS

OF ALL KINDS

Factories at
Apalachicola, Fla.
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IF

you size or finish your goods,

IF

you strip your goods,

DIASTAFOR

can show

ADVANTAGES

from standpoint of economy as well as quality of fabric.

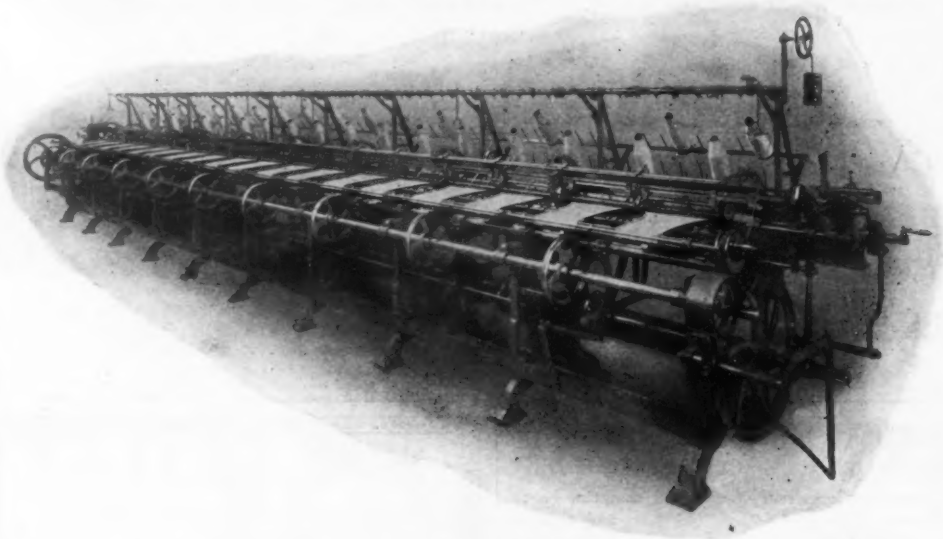
The American Diamalt Co.
Riverside, Cincinnati, Ohio

Full Fashioned Hosiery Machines

BUILT BY

SCHUBERT & SALZER

Largest Manufacturers of all classes of Hosiery Machines.



Best constructed and most productive machines in the market for the manufacture of Full-Fashioned Hosiery in Cotton, Lisle or Silk.

Split-Sole, Plating, 2, 3 or 4 Color Striping
Single or Double Lace Attachment.

Also: New Jacquard Lace Hosiery Machines.
Ribframes Winders

REFERENCES:—All the leading manufacturers of full-fashioned hosiery in this country.

AMERICAN REPRESENTATIVE:

OTTO WALTHER, 507 Bourse, Philadelphia

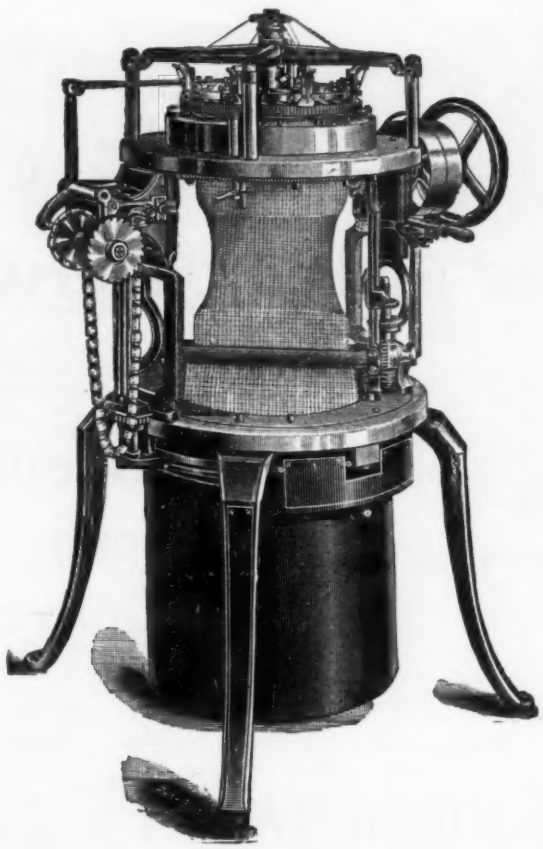
Wildman Manufacturing Co.

Norristown, Penn., U. S. A.

Manufacturers of

Circular Rib Knitting Machinery

Automatic
Stop
Motions



Electric
Cloth
Cutters

AUTOMATIC AND PLAIN

For all classes of Ribbed Hosiery, Underwear, Combination Suits, Sweaters, Etc.

FRIEDBERGER-AARON MFG. CO.

LEADING MANUFACTURERS

Braids and Edgings

FOR TRIMMING

Ladies' Ribbed Underwear

OUR MOTTO: Correct Goods
Right Prices
Prompt Deliveries

Mills: Germantown, Philadelphia

Post Office Address,
Logan Station, Philadelphia

THE GROSSER KNITTING MACHINE CO.

WOOL EXCHANGE
260 W. Broadway

MAX NYDEGGER

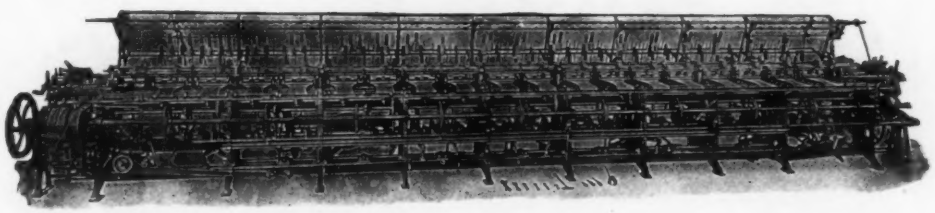
NEW YORK

PHILADELPHIA OFFICE 435 BOURSE BLDG.

All Special Machines for Any Article That Is Knit

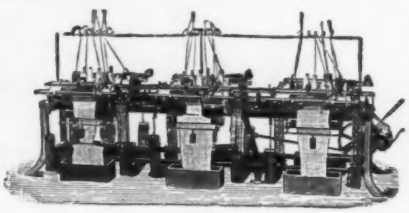
Full Fashioned Hosiery Machines

System **G. Hilscher, Chemnitz, Saxony**



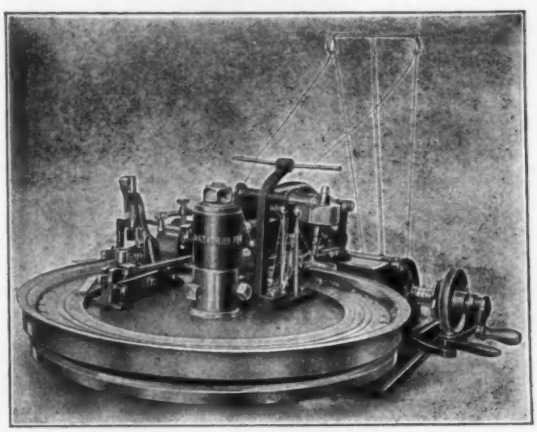
18 Section "COTTON HILSCHER" Machine for Full Fashioned Hosiery, Silk, Cotton, Wool, etc.
Gold Medal, Paris, 1900 Numerous Patents Covering Special Improvements

GROSSER Flat Knitting Machines
For HAND Power or FULLY AUTOMATIC Power MACHINES. Most productive and best machines for Sweaters, Jackets, Blouses, Wool Hosiery, Gloves, Mittens, Sporting Goods in Plain, Fancy and Jacquard Work, Shaker Articles, etc. Large stock on hand. Power Machines to be seen in operation.



CIRCULAR FRENCH FRAMES
C. Terrot Söhne, Cannstatt, Würt, famous builders of the best Circular Frame for Finest Underwear, Fleece Linings, Gloves, Special á-jour (openwork) Fabrics, etc.

RASHEL MACHINES [Double Rip Warp Knitting Machines.]
For Fancy Goods in largest variety, Shawls, Capes, Caps, Borders, Fringes, Lace Work, etc., in silk, wool cotton.



The LOOPER THAT LOOPS!
Two thread lock stitch machine with reliable trimmer and raveller producing *indistructible, flat elastic* seam.
No Hosiery or Underwear plant up to date without this machine.

DIAMOND OVERSEAMERS
for all classes of selvege goods, Full Fashioned Hosiery, Underwear, etc.

FINISHING MACHINES for Knit Goods of all styles.

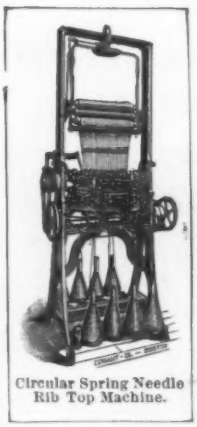
WINDERS for finest yarns.

Information, Samples and Specifications at Your Disposition

CHARLES COOPER

BENNINGTON, VERMONT.

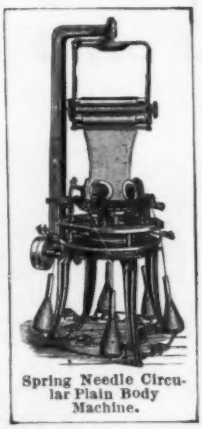
MANUFACTURER OF



Circular Spring Needle Rib Top Machine.

Knitting Machinery

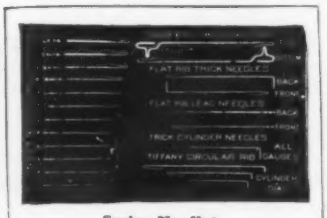
Flat and Circular Rib, both Spring and Latch Needle, Plain Circular Machines, Lead or Trick Cylinder.



Spring Needle Circular Plain Body Machine.

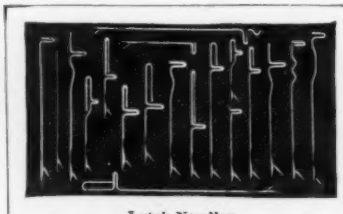
Spring Needle Cylinder Rib-Top Machines

For making Cuffs, Drawer Bottoms and Shirt Borders.



Spring Needles.

Spring and Latch Knitting Needles, Burr Wheels, Burr Blades, Sinkers, Jacks, Etc.



Latch Needles.

COLLARETTE ATTACHMENT.

AMERICAN REPRESENTATIVE.

G. H. ROGERS,
509 Clinton St., Hudson, N. Y.

EUROPEAN REPRESENTATIVE.

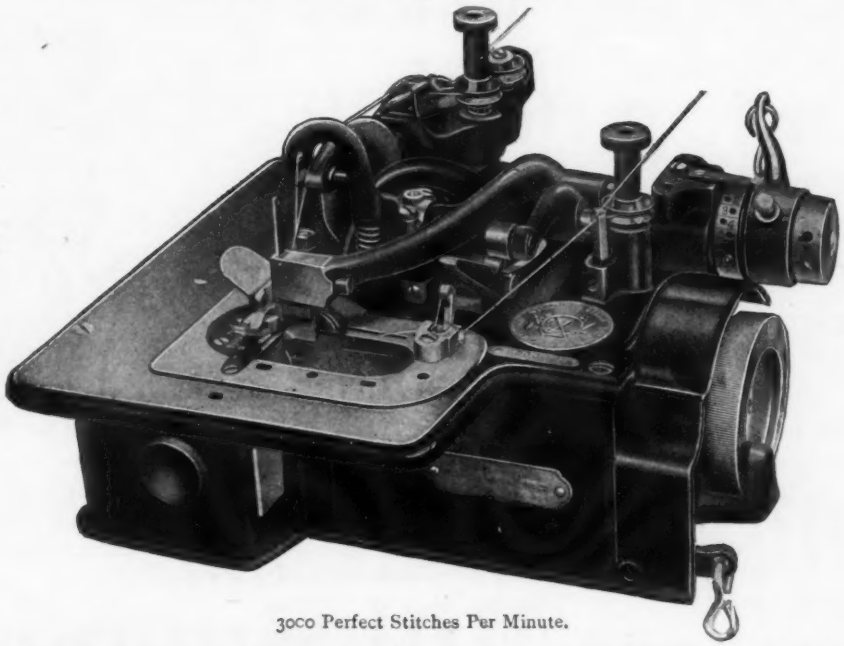
FELIX LEDERER.
Ix/4 Schubertgasse, Nr. 22, Vienna, Austria.

On and After January 1st, 1909

The "OVERLOCK" Machine will be SOLD as well as RENTED. Prices and terms on application. Machines will be supplied in the order of receipt of application.

EVERYWHERE
This TRADEMARK is a Recognized Guarantee of Perfect Sewing Mechanism.

Reg. U. S. Pat. Off.



3000 Perfect Stitches Per Minute.

An Instrument of Precision — The "OVERLOCK" Machine

(REG. U. S. PAT. OFF.)

For making a strong, elastic, trimmed and covered Seam, Hem or Overedge in one operation on

Knit Goods

for instance, Ribbed, Flat and Fancy Underwear, Sweaters, Cardigans, Hose, Half Hose and Bathing Suits.

For making an Ornamental Overedge, plain or scalloped, or Artificial selvedge on

Woven Fabrics

for instance, Lace and Novelty Curtains, Wrappers and Petticoats of Flannelette and Lawn; Waists, Ribbons, Bed Quilts, Belts and the hundred and one articles of wearing apparel, Decorative Fabrics, etc.

Willcox & Gibbs Sewing Machine Co.

General Offices, 658 Broadway cor. Bond St.
NEW YORK

EUROPEAN AGENCIES:

London Paris Milan Dresden Brussels Nottingham

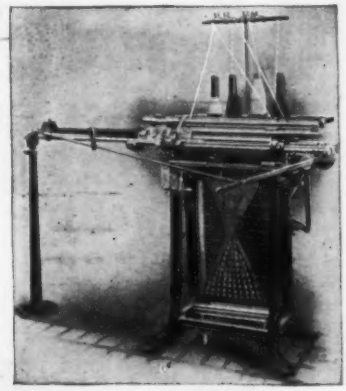
Edouard Dubied & Co.,

Couvet, Switzerland,

Leading Manufacturers of

Flat Knitting Machines

For Hand and Power
Full Automatic, Etc.



Best constructed and most productive machines on the market for manufacturing sweaters, gloves, sporting goods, etc. *For particulars apply to*

E. O. SPINDLER, Agent,

350 Broadway **Room 706,** **NEW YORK, N. Y.**

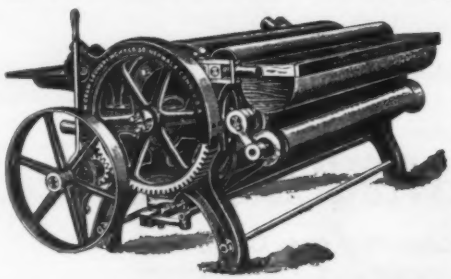
Oils

E. W. Murphey & Co.
HUDSON, N. Y.
Established 1831.

Sewing Machine Belting, Press Boards, Belt Hooks, Lace Leather, Leather Belting, Latch Needles, Oilers of every description, Mill Baskets and Brooms, Mill Banding, Rings and Springs, Packings of all kinds, Fire Pails, Shears and Trimmers, Cloth Knives, Etc.

and Mill Supplies

Of Proven Efficiency and Economy



AUTOMATIC IRONING AND PRESSING MACHINES FOR KNIT GOODS

No Broken Buttons

This machine irons and presses ribbed and flat underwear and other knit goods, giving a fine, smooth, attractive finish, which cannot be as easily obtained in any other way. It does not break buttons and can be adjusted to all grades. It is so easy to operate, so inexpensive to maintain and is of such large capacity that knitting mills throughout the country effect fully 50 per cent. saving through its use. For particulars, prices and list of knitting mills using our machinery address us at our factory.

Saves Half Your expense

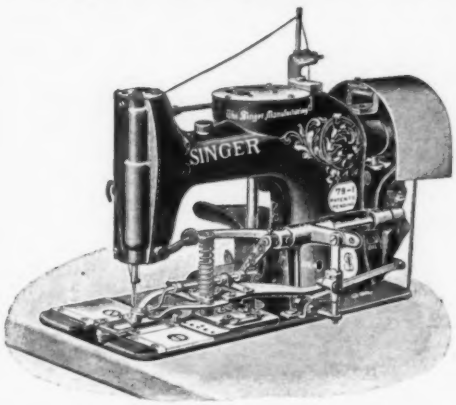
The Consolidated H. S. & L. M. Company

Saugatuck, Conn.

Sole Manufacturers of the "Craw" Automatic Ironing and Pressing Machine

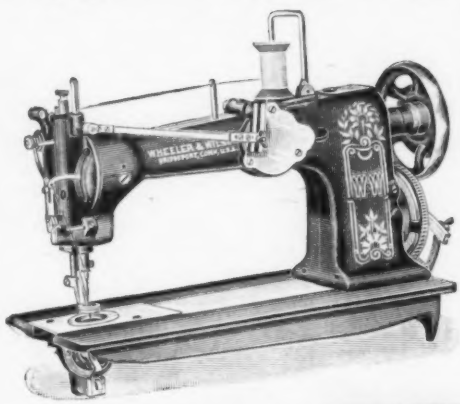
MONEY SAVERS
For Knit Goods Manufacturers

Singer Machine No. 79-1

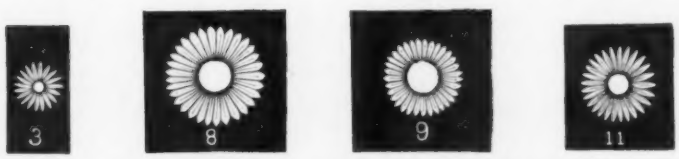


For Tacking Drawers Straps, is adjustable for making the bar tack from 1-2 to 7-8 of an inch long and 1-16 to 3-16 of an inch wide, the last two stitches fastening the thread and the automatic cutters trimming it close to the tack, both top and bottom.

Singer Machine No. 19W3



For Making Eyelets. Makes eyelets, as illustrated below, with one Radial Stitch at each movement of the feed during a revolution of the Clamp; as there is no Automatic Stop Motion, the operator stops the machine at will.



Send to-day for samples of work to

Singer Sewing Machine Co.,

Room 3613 Singer Building, **NEW YORK**

The first to be used

New advertisements of textile machinery and mill equipment almost invariably appear first in the TEXTILE WORLD RECORD. Investigation will prove this statement. More than twenty-five such new advertisements appear for the first time in this issue.

The reason is that every prospective advertiser, if he knows anything about the textile field, or if he asks somebody who does, send first to the TEXTILE WORLD RECORD.

About one half of the advertisers in this publication use no other textile journal. It lost very few advertisers during the late depression.

It is not a market report paper, but is principally devoted to the machinery and processes of textile manufacture. Its field includes cotton, woolen, worsted and knitting mills, dyeing, bleaching and print works, finishing establishments, etc.

The annual expenditure of these mills for machinery, supplies and equipment, not including raw material, exceeds $200,000,000.

An advertisement in the TEXTILE WORLD RECORD reaches the men who have the spending of this vast amount of money and its advertisers get the bulk of it.

When textile advertisers cut down their list, the TEXTILE WORLD RECORD is the

Last to be given up

Sent Free

A complete catalog of all

Textile Books

OUR descriptive catalog contains a list of all the books in the English language on textile subjects that are in print and that are of present value, classified under the different subjects to which they pertain. This catalog should be in the possession of every mill man. It will be sent free upon application. New books on textile subjects are being published frequently. We can supply any textile or technical book, whether of our own publication or not, at lowest prices. We can also give information and prices of foreign textile publications, etc. We are headquarters for everything in the line of textile literature and information.

Lord & Nagle Co.

Boston, Mass.

Publishers of the

Textile World Record

"Nothing so Good as a Good Finish"

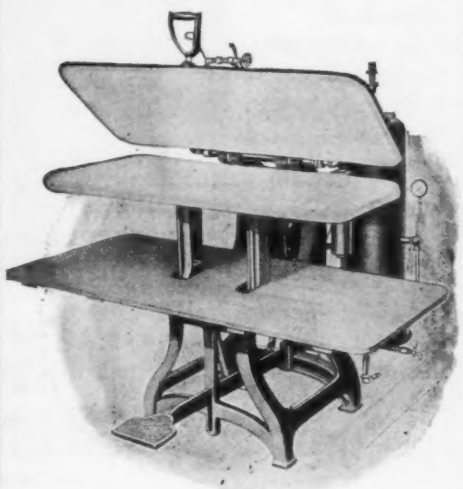
We are speaking of the finish on Knit Goods as produced by the

Hoffman Press

Presses a full garment in one operation, leaving it smooth and of fine finish.

Will not break buttons.

Floor space required—4 feet square.



The "Hoff-Man" F.

Already in successful operation in a number of representative mills.

Write us for prices, particulars and illustrated catalogue.

United States Hoffman Company

229 Temple Street

SYRACUSE, - N. Y.

Higher Speed

To Reduce Cost of Production by Increasing Output of Operators

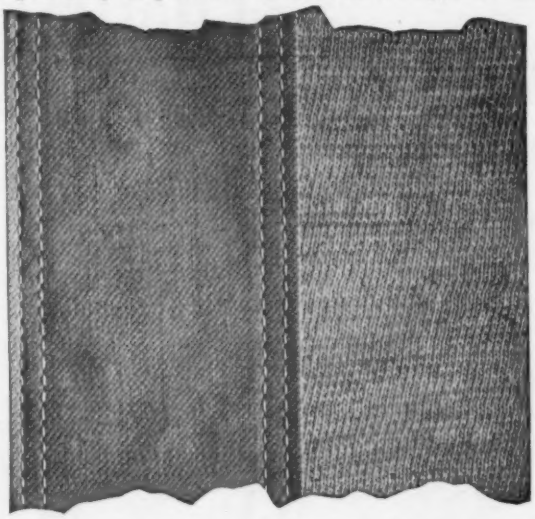
Higher Efficiency

USE

Multiple Needle Machines

For all Multiple Needle Operations, whether for Ornament or for Service, where it is desired to have a plurality of parallel rows of stitching, needles spaced as desired

Yielding Bottom Presser Foot to be used where different thicknesses of Fabric are being Stitched Simultaneously



Special Fittings and Attachments now ready for Numerous Manifold Operations

Greater Simplicity

Style 16100 A-4 Needles-8-80-8 Gauge
Stitching Front Facings to Shirts
One Operation

Greater Durability

Union Special Machine Company

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50 E. Main St., Amsterdam, N. Y.
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776 St. Catherine St., W., Montreal, Can.

HOME OFFICE AND WORKS
75 E. Kinzie St., Chicago, Ill.

GENERAL EASTERN OFFICE
47 Leonard St., New York City

BRANCHES
731 Arch St., Philadelphia, Pa.
806 Main St., Cincinnati, Ohio
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Drying Forms.

BOARDS FOR FAST BLACK DYERS.

HOSIERY FINISHING BOARDS.

BEST WORK. PROMPT SERVICE. PRICES ALWAYS RIGHT.

JOS. T. PEARSON 1815-21 TAYLOR ST. KENSINGTON PHILA

Hosiery Boards.

James Taylor, 121 Arch Street, Phila., Pa.

DEALER IN NEW AND SECOND HAND

Knitting Machinery

Wishes to call the attention of the manufacturers of Ribbed Hosiery and Underwear to the new patented

Double Acting Attachments for Ribbers

sold on its merits only. Here are a few of its MERITS:

Double Production; as it is double acting; fills your orders in half the time or more orders in the same time; you produce in six months what it now takes you one year to do; does the work of two machines.

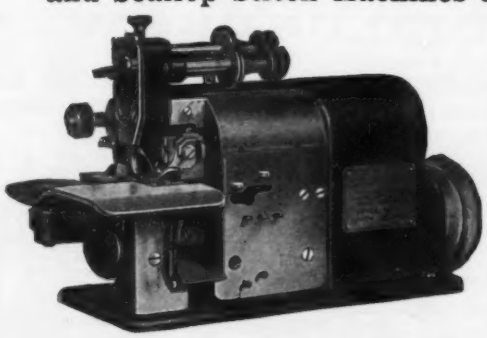
Costs Less; requires just half the space, hat means less rent or investment; weigh or measure the product, then compare with present methods; makes a good RIBBER better. New parts all built on the interchangeable PLAN. We are changing over either WILDMAN, BRINTON or SCOTT & WILLIAMS MAKES of machines.

Call and see machines on exhibition at 121 Arch St., Phila.

The Merrow

High Speed Overseaming, Overedging and Scallop Stitch Machines are

FAST
DURABLE
Light Running



OUR STYLE 60 MACHINE for Trimming and Overseaming in one Operation produces the strongest, best Seam and does it with the greatest economy.

USE STYLE 18 for Horse Blankets. STYLE 17 or 22 for Bed Blankets. STYLE 35 B SHELL, for Necks and Fronts of Rib Goods, produces the most showy, substantial finish.

Send for Catalogue and Samples.

THE MERROW MACHINE CO. HARTFORD, CONN.

Knickerbocker Building, Sixth and Arch Sts., Phila. 467 Broadway, cor. Grand St., N. Y. 237 Market St., Chicago, Ill.

EXCELSIOR KNITTING MACHINE MFG. CO.

Meadow and Washington Streets

ALLENTOWN, PENNA.

BUILDERS OF

Full Automatic Knitters

With or without **Transferring Device**

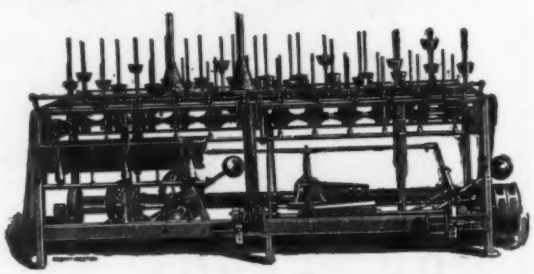
ALL SIZES AND GAUGES, 2 1-4 INCH TO 4 INCH

CIRCULAR KNITTING MACHINES

Either plain or full automatic, with stop motions complete. 4 to 24 feeds for

RIBBED UNDERWEAR

Automatic Racking and Striping Machines for Sweaters, Cardigans, Collarettes, Cuffs and Anklets.



ALSO BUILDERS OF THE WELL-KNOWN

ABEL WINDERS, SEAMERS and LOOPERS.

LEIGHTON MACHINE CO., - Manchester, N. H.

The Invincible

Full Automatic.

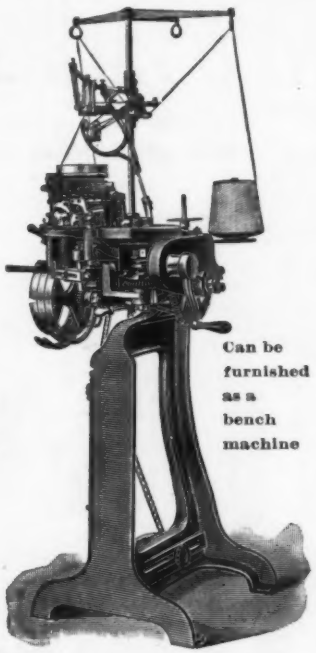
"The KNITTER that KNITS"

THE LARGEST PRODUCER OF PERFECT WORK.
SIMPLE, POSITIVE AND EASY TO OPERATE.

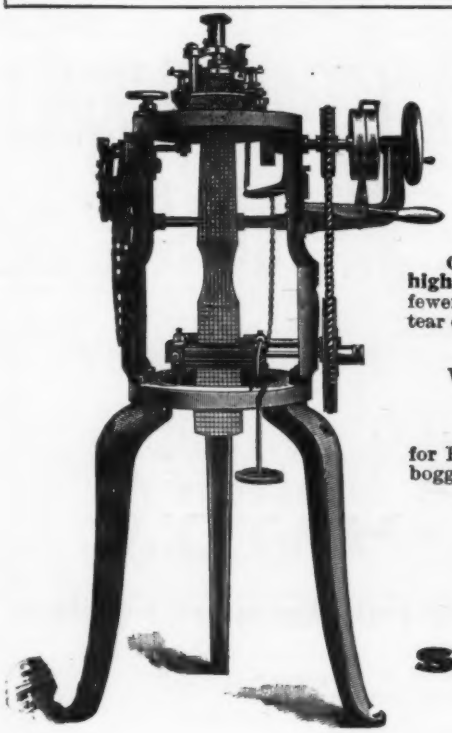
E. JENCKES MFG. CO.

Pawtucket, R. I.

PHILADELPHIA OFFICE,
101 North Sixth St.



Can be furnished as a bench machine



High Speed Rib Knitting Machinery.

Our latest model machinery has been designed to run at **very high speed,** giving large production. This is accomplished with fewer seconds, less breakage of needles, less jar and wear and tear on machines than has been customary at lower speeds.

We also make Special

STRIPING AND DESIGNING MACHINES

for Fancy Golf Stockings, Bathing Suits, Sweaters, Toques, Toboggan Caps, Skirts, etc.

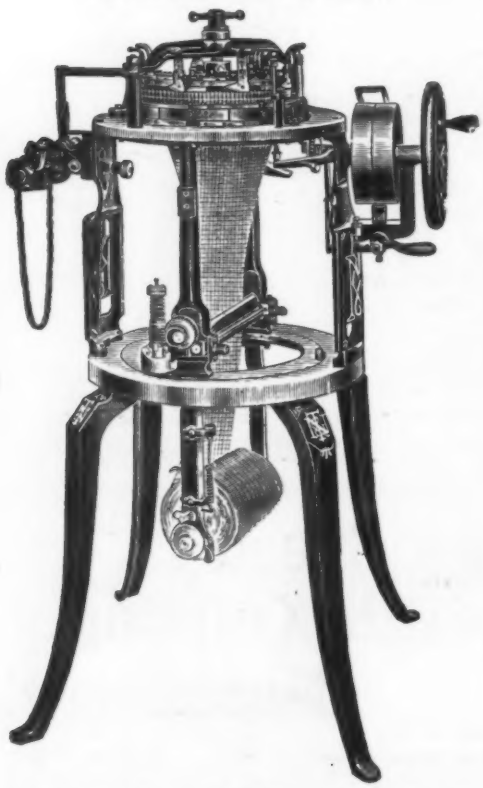
Our Machinery gives large production at low cost and enables manufacturers to meet the market always and make a profit.

STAFFORD & HOLT,

LITTLE FALLS, N. Y.

NYE & TREDICK CO.

718-720 Cherry Street,
PHILADELPHIA, PA.



Circular Rib Knitting MACHINERY

For making Ribbed Underwear, Combination Suits, Sweaters, Cuffs, Shirt Borders, Hosiery, etc. Correct Construction, Excellence and Durability.

LATEST IMPROVEMENTS
QUALITY OF FABRICS AND PRODUCTION
UNEXCELLED

NYE & TREDICK CO.

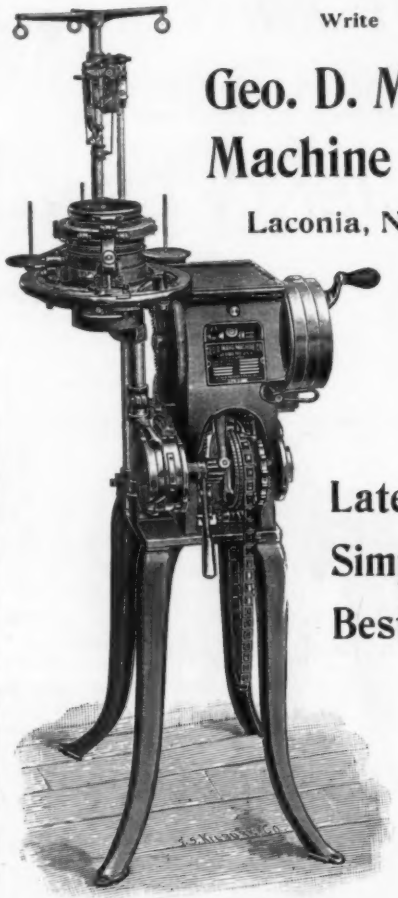
If You Want

Largest Production For Least Money

Write

Geo. D. Mayo Machine Co.,

Laconia, N. H.

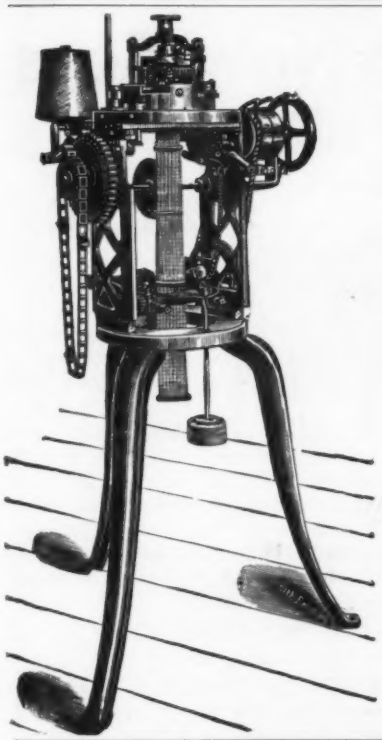


Latest
Simplest
Best

MAYO'S

New Full Automatic Knitter

PHILADELPHIA OFFICE,
KNICKERBOCKER BLDG., COR. SIXTH AND ARCH STS.,
B. M. DENNEY, REPRESENTATIVE.



H. Brinton & Co.

213-215 Race Street, Philadelphia, Pa.

BUILDERS OF

Knitting Machinery

For HOSIERY and UNDERWEAR.

Complete Estimates Furnished. ***Send for Particulars.***

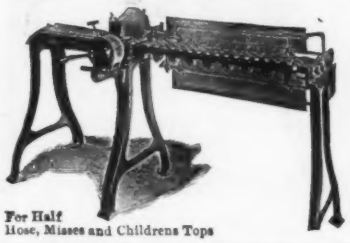
The cut shows our **Improved Automatic Ribber** with Welt and Slack Course for Half Hose, Tops and Ribbed Legs.

For Half Hose Tops Only

AUTOMATIC POWER TOP CUTTING MACHINES

Will cut, automatically, 1000 dozen half hose tops, or cut, and automatically pile in heaps of one dozen each, from 400 to 700 dozen misses tops, according to length, per day.

ROBINHOLD MACHINE CO.
650 North 8th St.. Reading, Pa.



For Half Hose, Misses and Childrens Tops

Automatic Machine Works

GEO. W. STEVENSON, Inventor and Proprietor — **315-315½ Elm Street, Reading, Pa.**

Builders of

Automatic Singeing Machine and The Cold Hosiery Press.

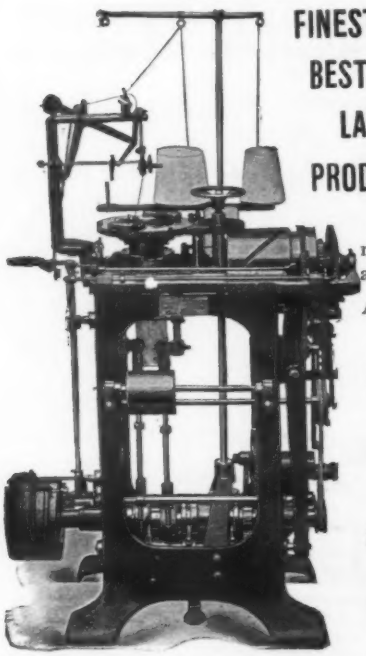
The Automatic Singeing Machine is the only machine on the market equipped with a **Patent Single Plate Positive Stripping Device,** which saves gas, hose and labor. Built in two sizes double and single feed.

The Cold Hosiery Press is very simple to operate, is less expensive, no complicated parts and requires very little power. With this press the life of the yarn is retained and the finish of the hosiery after coming out of the press cannot be equalled by any other press hot or cold. The press is built in two sizes.

For further information address as above

"NATIONAL"

Stands for



FINEST GAUGES
BEST FABRIC
LARGEST
PRODUCT ON

Greatest Variety of Laces and Novelties.

Allautomatic.

Lowest Cost for Operating

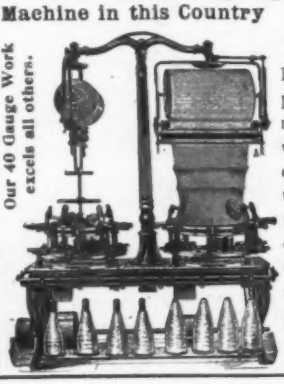
Also Rib Knitting Machinery, Overedge, Crochet and Shell Stitch.

NATIONAL AUTOMATIC KNITTER CO.

728 Cherry Street, PHILADELPHIA, PA.

We are the Oldest Manufacturers

of this Design of Spring Needle Knitting Machine in this Country



40 years' experience

Do not be misled by people who became manufacturers in 1903 without any previous experience who are trying to represent that they are the oldest manufacturers. Investigate. Call and see our fine gauge work.

Robt. W. Gormly & Co.
Troy, N. Y.

The New Boss Seamless Knitter

Do you want the biggest production with the least menders, for the least money? If so, write to the Boss Knitting Machine Works for their circular with full directions. There is no cylinder to be handled. We use only one cylinder and transfer device for half hose or ladies' hose. This machine beats them all. Has no equal for simplicity and durability. Makes 300 revolutions per minute. Built in sizes from 2¼ to 5½; from 40 to 224 needles. Automatic in heel and toe. It is the strongest built knitter on earth.

Send for prices and particulars.

THE BOSS KNITTING MACHINE WORKS,
Cor. Elm and Reed Sts., Reading, Pa.

"Acme" and "Hemphill"

SEAMLESS HOSIERY

Knitting Machines

built by

Mayo Knitting Machine & Needle Company

Franklin, N. H.

Answer all purposes in the *most reliable*, *up-to-date*, and *economical* manner. Write us for full particulars.

Manufacturers like our Latch Needles

because we make a superior grade of needles.

Philadelphia Office, Knickerbocker Bldg.

STANDARD MACHINES FOR HOSIERY MAKING

The STANDARD F, with attachments, can make any and all of these fabrics:

Plain Goods
Plaited Work
Three Color Stripes
Tipped Heel and Toe
White Foot
Changed Heel and Toe
Garter Top
Loopers Slack Course

Most Stockings—Best Fabrics—Longest Life

Standard Machine Company

OFFICE AND SHOW ROOMS

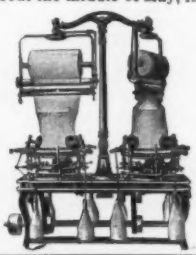
330-340 North 12th St., Philadelphia

We Are the Oldest Manufacturers
IN THE WESTERN HEMISPHERE
Of Circular Spring Needle Loop-Wheel Knitting Machinery.

TOMPKINS BROS. CO., Troy, N.Y.

We submit the following extract from the sworn testimony of R. W. Gormly, in U. S. Circuit Court, Northern District of New York, in equity, No. 6764:

Cross Question 123. How long have you been a manufacturer of knitting machines? Answer. I started in this business about the middle of May, 1900.



Tompkins Knitter

This design was adopted in 1875.

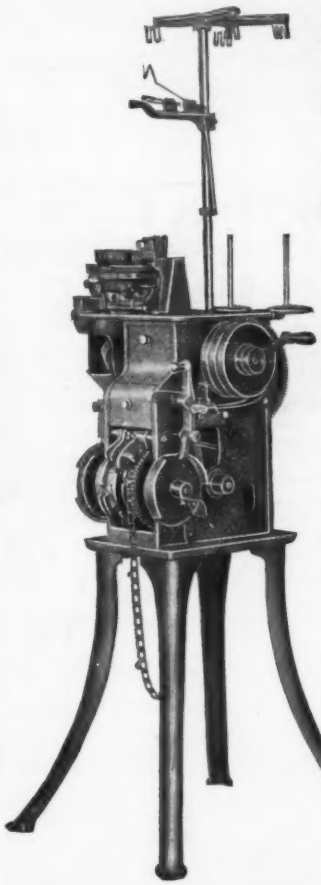
BUSINESS ESTABLISHED in 1846, before ROBERT W. GORMLY Was born, according to his testimony in the case above cited.

"THE BANNER"

Hemphill's Latest

A FULL AUTOMATIC MACHINE

Specially adapted to



Plaited Goods
and
String Work
also
High Splice
and
Double Sole

Largest Production
More Yarn Changes
Highest Speed
Simplest
Least Repairs

Produces a Superior Quality of Work.

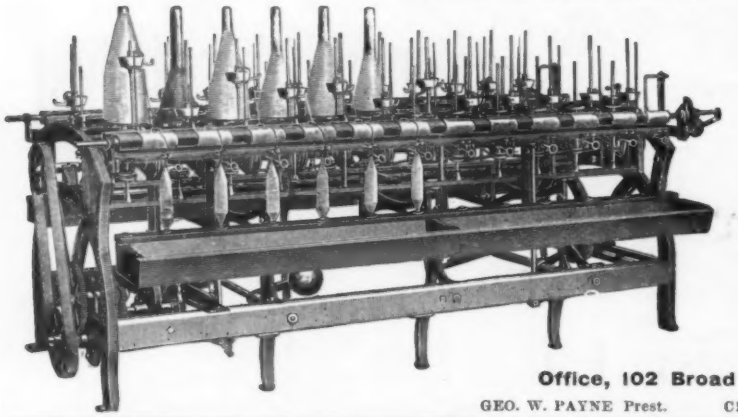
MANUFACTURED BY THE

Hemphill Mfg. Co.

131 Clay Street, PAWTUCKET, R. I.

OVER 1,900 PAYNE WINDERS IN USE

By Hosiery Manufacturers,
Wind for Cop, Skein or Bobbin.



Improved

Upright Spoolers,

To Spool from Cop, Skein or Bobbin.

Doubling Spoolers for doubling 2, 3, or more ends into one.

Upright Quillers, Quill from Cop, Skein or Bobbin.

Ring Dresser, Spooler and Reel Spindles, Cop Skewers, Warp, Spool, Spooler, Guides, Bolsters and Stops Made and Repaired at Short Notice.

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Patent Single-Stitch

LOOPING MACHINE.

Needle working from the inside, avoiding the breaking of needles and points and picking up the metal.

Single and Double Stitch, or Both Combined.

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For Ladies', Gents' and Children's Goods.
Latest Styles.
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Drying Form Boards

OF EVERY VARIETY.

American Raveller Company

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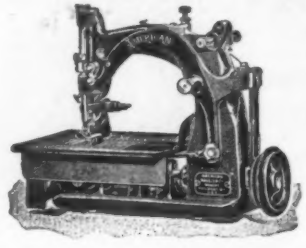
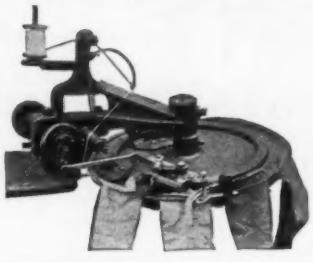
MANUFACTURERS AND PATENTEES OF

High Speed, Elastic Stitch Sewing and Trimming Machines



Also ravelling machines for making knit underwear and hosiery full fashioned.

2 line and twin needle machines for fancy stitching.



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Original and Still the Best.

Most widely used; being operated in every civilized country in the world. For description, prices, etc., see catalogue.

Circular Machines,
Rib Top and
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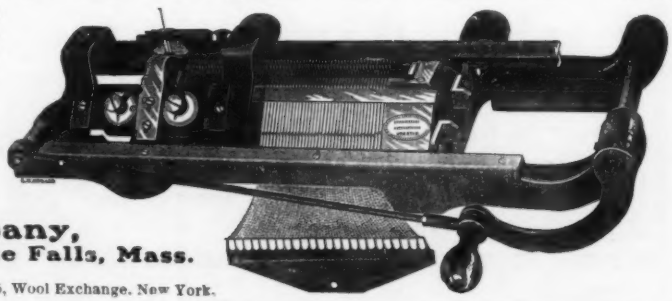

Lamb Knitting Machine Company,
P. O. Box, 5888, **Chicopee Falls, Mass.**
J. E. WOODHEAD, 100 22d St., Chicago.
L. D. SANBORN, Room 505, Wool Exchange, New York.

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were the first machine builders in Chemnitz, Germany, to construct

Full Fashioned Hosiery Machines

upon the Cotton principle and which since their introduction have never been excelled by any other machine builder; be it in construction or productiveness. Built in all gauges and for any material, cotton, wool, lisle or silk.

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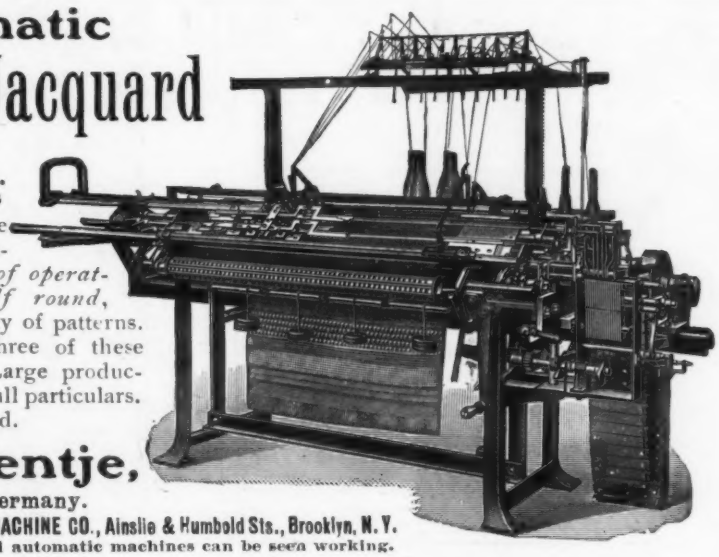
for high-grade sweaters, jerseys, etc.
Latest improvements

Recognized as the best in the market. With Jacquard attachment allowing *change of operating mechanism every half round*, therefore unrivaled in variety of patterns. One operator attends to three of these machines. High speed. Large production. Ask for samples and full particulars. State gauge and size you need.



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Mühlhausen Thr., Germany.

Representatives, **AINSLIE KNITTING MACHINE CO.**, Ainslie & Humbold Sts., Brooklyn, N. Y.
Where all kinds of our hand and automatic machines can be seen working.

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Full Automatic Knitter

FOR ALL KINDS AND GAUGES OF SEAMLESS HOSIERY.
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With Lace Effects.

Exclusive rights to BROWN'S LACE ATTACHMENT.

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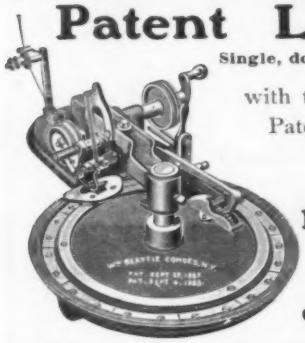

Single, double and two thread Stitch.

with the
Patent Raised
or
Straight Points.

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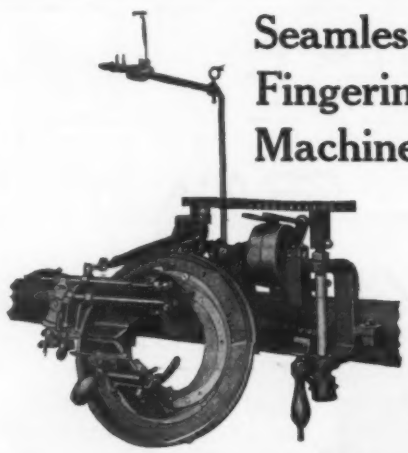

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Knit Glove Manufacturers

If you want to be up to date, ask us for particulars of this machine. Indorsed by leading manufacturers.

James Leckie & Son,
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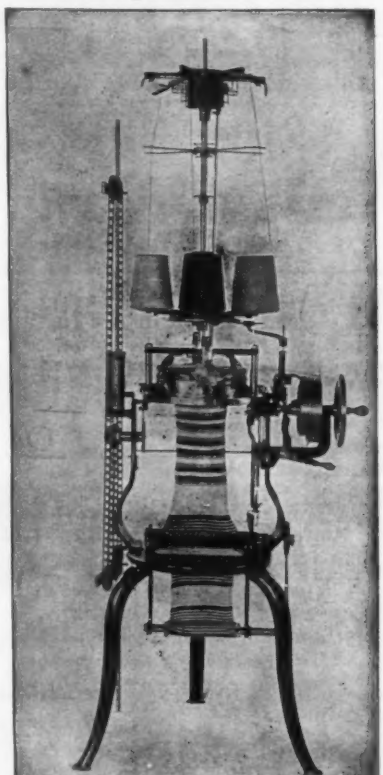
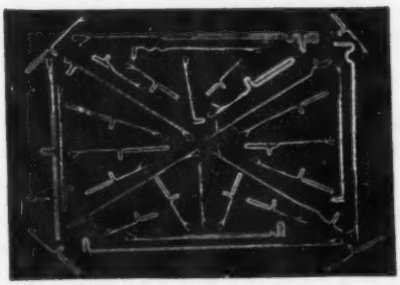
Spring and Latch Needle Machines for both rib and plain work, producing a great variety of fabrics. Patent removable hardened Wing Burr Wheels.



Improved Automatic 3-Colored Plain Striper.

TRY OUR "SUPERIOR" OR SUNKEN RIVET-HEAD NEEDLES

They will save you money.



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WM. COREY CO.,

Manufacturers of Knitting Machine

Latch Needles

MANCHESTER, N. H.

EXCELSIOR NEEDLES.

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Needles for all makes of Knitters and Ribbers.
Keystone Spring Bottom Needles for all makes of Knitting Machines always in stock for immediate delivery.
Special Needles made to order.

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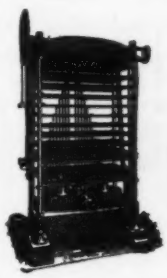

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The most reliable machine of the kind on the market.

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both Cylinder and Wicket Gate, giving **ENORMOUS** power are used in hundreds of textile mills throughout the world.

We make a specialty of designing turbines to meet the requirements of the public.

We build Francis turbines in spiral flumes to operate under high heads.

Boston Office, 176 Federal Street.

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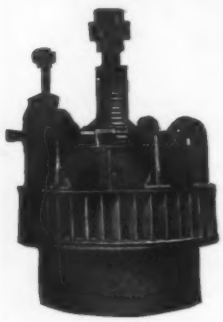

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RISDON CELEBRATED TURBINE
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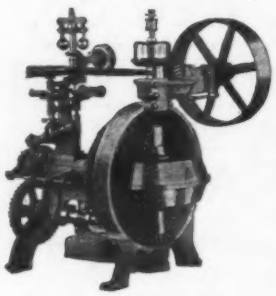
On Horizontal or Vertical Shafts.

These Turbines are recognized as the most effective water wheels made. Your inquiries should come direct to us for this class of machinery.



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OUR compensating type more fully meets the needs of Textile Mills than any other. This is due to its being the only successful quick acting, mechanical, governor and its perfect control of large as well as small changes. 1500 of this type in use in mills and electric power plants.

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CYLINDER or BALANCE GATE CASING

Highest Efficiency, Greater Power,
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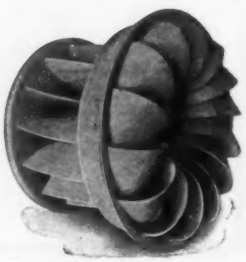
Steady Motion, Durability.



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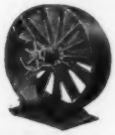
BRANCH OFFICE: 70 Kilby St., Boston, Mass.
See our other advertisement on Woolen Machinery.

"A B C" Disc Ventilating Fans

move more air with less power.



Our fans are built in an entirely different way from any other kind—they deliver a maximum amount of air with a minimum expense for power. Durable, efficient, noiseless—they are

the ideal fans for textile mill ventilation.

Send for catalogue No. 200TR

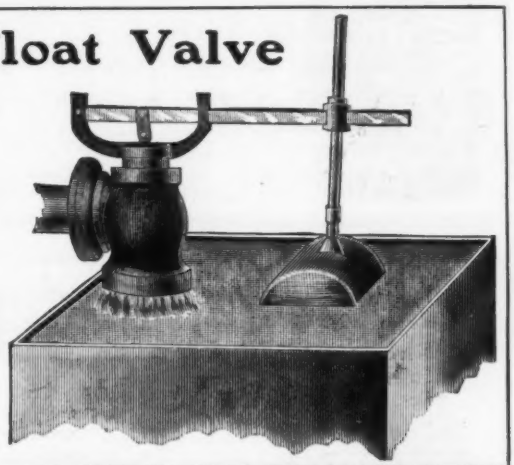
AMERICAN BLOWER COMPANY, Detroit

NEW YORK CHICAGO ATLANTA LONDON

The "Kellogg" Float Valve

Is Warranted Always to Operate

as it has no packing gland which can be tightened up to cause it to stick, thereby causing the tank to overflow. It is a balanced valve and operates with a smaller float than any other make of valve of the same size.



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ESPECIALLY ADAPTED FOR MILL USE.

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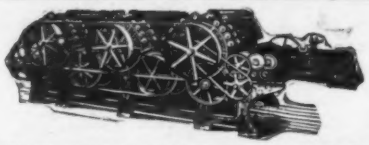

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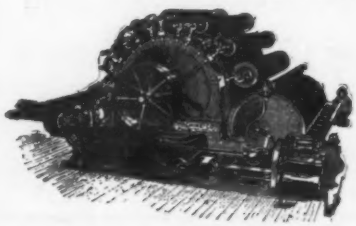
For reducing to Fibre Cotton and Wool Waste, Cloth Clippings, Etc.



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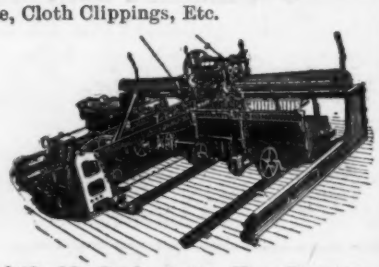

Including Rag, Wool and Burr Pickers, Wool, Worsted and Shoddy Cards, Mules, Yarn Twisters, Warpers, Dressers, Spoolers, Etc.

Complete Equipment for Manufacturing Cotton Batting for All Purposes.

Special Carding and Spinning Machinery for manufacturing Yarn from such low grade stock as Mill Sweepings, Linters, Etc.

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Built entirely of STEEL; no woodwork. All trouble with aprons overcome by the Inter-Locking Chain Conveyor. "It needs no adjustment."

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The Inter-Locking Chain Conveyor Separate From Dryer.

Dryers for Cotton Stock, Wool, Rags, Cloth, Hosiery, Yarn, Underwear, Etc.

Complete Carbonizing Outfits. Iron Bowl Yarn Scouring Machines.
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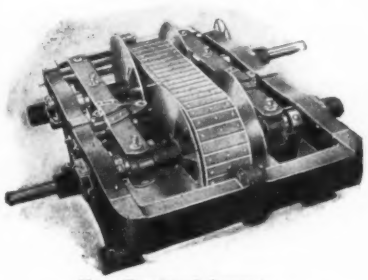
Carbonized Goods

and would like a few particulars. Write for them, or better still, make a date and our representative will call.

THE MILL EQUIPPED WITH

"Reeves" Variable Speed Transmission



for regulating the speed of Slashers, Singers, Drying Cylinders, CELL DRIERS, Printing and Dyeing Machines, Steam Agers, Tenter Frames, Dampeners, etc., produces the best and most reliable results. *Scrap* your cones.

Enquire of those who are using them.

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Cone Winding.
Tube Winding.
Skein Winding.
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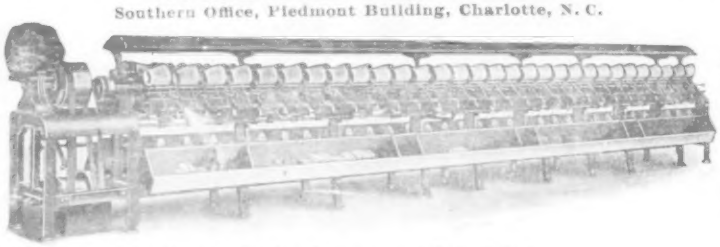

Both "Open" and "Close" Winding Machines for every branch of textile manufacturing.

New Model No. 12 Cone and Tube Winder.

Rae's "New Century" Cards

1. More carding on our 2-card set than on 3-card set, old style.
2. More and better mixing than on any other card made.
3. Less waste, less power, less room, less card clothing.
4. The only improvement on cards that has been proven a success. Come and see them running.

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Without Regulating Attachments.

The Bell Humidifier has no spray devices whatever. It provides moisture ready for evaporation.

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"Walmanco" Pipe Flanges
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